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OFFICERS
AMERICAN PUBLIC WORKS ASSOCIATION

American Public Works Association

SECOND CONVENTION

ATLANTA, GA.,
September 14th and 15th, 1906



PUBLISHED BY ORDER OF THE EXECUTIVE COMMITTEE.

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*Assoc. Inst.
of Min. Eng.*

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PRESIDENTS OF THE ASSOCIATION

J. A. OMBERG, JR., C. E.

OF MEMPHIS

R. C. HUSTON, C. E.

OF HATTIESBURG

CONVENTIONS OF THE ASSOCIATION

FIRST

GULFPORT, AUGUST 26-27, 1904

SECOND

ATLANTA, SEPTEMBER 14-15, 1906

OFFICERS AND COMMITTEES

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Matthew F. Cole, ... First Vice-President.
Charles C. Wilson, ... Second Vice-President.
George O. Tenney, ... Third Vice-President.
William H. Flint, ... Secretary.
Morgan Llewellyn, ... Treasurer.

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A. J. Bowron,	C. M. Ladd,
Charles F. McKenzie,	Maurice W. Thomas,
John W. Neil,	Joseph S. Slicer,
A. M. Lockett,	William B. King.

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Walter Castanedo,	J. R. Gordon,
Adam W. Jones,	Fair Dodd.

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Matthew F. Cole, Chairman.

A. J. Bowron,	William F. Wilcox,
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Joseph S. Slicer,

Fair Dodd.

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Morgan Llewellyn, Chairman.

Patrick J. Crimmins,

Eugene C. Butner.

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William B. King,

Edward J. O'Beirne,

William F. Wilcox,

Joseph S. Slicer,

Fair Dodd.

COMMITTEE ON STANDARDIZATION.

W. H. Hume, Chairman.

P. J. Crimmins,

T. J. Halsey,

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D. K. Abbott, Springfield, Ohio.
Abee & Edwards, Contractors, Hickory, N. C.
Ahrens & Ott Mfg. Co., New Orleans, La.
Allis-Chalmers Co., Atlanta, Ga.
American Cast Iron Pipe Co., Birmingham, Ala.
American Light & Water Co., Kansas City, Mo.
Atlas Engine Works, Atlanta, Ga.
F. C. Austin, Drainage Excavator Co., Chicago, Ill.
W. E. Austin Co., Manufacturers, Atlanta, Ga.
F. H. Beeman, Contractor, Louisville, Ky.
Black & Laird, Contractors, New Orleans, La.
Algernon Blair, Contractor, Montgomery, Ala.
Blackmer & Post Pipe Co., St. Louis, Mo.
Bourbon Copper & Brass Wks. Co., Cincinnati, O.
Bosler & Flynn, Contractors, Chattanooga, Tenn.
Bostrom Brady Mfg. Co., Atlanta, Ga.
Wm. F. Bowe, Contractor, Augusta, Ga.
R. W. Braham, Agent, Huntsville, Ala.
T. C. Bradford, Con. Eng., Hattiesburg, Miss.
T. C. Brooks & Son, Contractors, Jackson, Mich.
Bryant & Co., Contractors, Jacksonville, Fla.
W. O. Burton, Contractor, New Orleans, La.
P. Byrne, C. E., Birmingham, Ala.
Tom J. Byrne, Contractor, St. Louis, Mo.
John J. Cain, Contractor, Columbia, S. C.
C. H. Campbell, Fabric Fire Hose Co., Atlanta, Ga.
The Philip Cary Mfg. Co., Atlanta, Ga.
Jno. W. Carsey, Greenville, Tex.
The Casey-Hedges Mfg. Co., Chattanooga, Tenn.
Castoe & Warner, Contractors, Bellaire, Ohio.
Central Foundry Co., New York.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chattanooga Sewer Pipe & F. B. Co., Chattanooga, Tenn.
Chicago Bridge & Iron Works, Chicago, Ill.
Chicago Engineering & Construction Co., Chicago, Ill.

Crocker-Wheeler Co., New Orleans, La.
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 H. H. Corson, General Electric Co., Nashville, Tenn.
 Crocker-Wheeler Co., Atlanta, Ga.
 Colcord Lumber Co., Atlanta, Ga.
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 Moise De Leon, Contractor, Atlanta, Ga.
 W. S. Dickey, Clay Mfg. Co., Kansas City, Mo.
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 Electric Appliance Co., Memphis, Tenn.
 Electric Supply Co., Memphis, Tenn.
 Electric Supply Co., Savannah, Ga.
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 The Fairbanks Co., New Orleans, La.
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 Gamewell Fire Alarm & Telegraph Co., Atlanta, Ga.
 Gardner Governor Co., Quincy, Ill.
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 Glamorgan Pipe & Fdy. Co., Lynchburg, Va.
 Glenny & Castaneda, New Orleans, La.
 J. C. Guild, C. E., Chattanooga, Tenn.
 W. T. Hadlow, Atlanta, Ga.

Hardie-Tynes Mfg. Co., Birmingham, Ala.
 Stanley G. I. Elec. Mfg. Co., Atlanta, Ga.
 W. R. Harris, E. H. Abadie Co., St. Louis, Mo.
 Harrisburg Fdy. & Machine Works, Harrisburg, Pa.
 P. O. Herbert (Eureka Fire Hose Co.) Atlanta, Ga.
 Harrison Safety Boiler Works, Philadelphia, Pa.
 Heine Safety Boiler Co., New Orleans, La.
 Herron Pump & Fdy. Co., Chattanooga, Tenn.
 Hoovens, Owens & Rentschler, Atlanta, Ga.
 R. C. Huston, C. E., Hattiesburg, Miss.
 International Steam Pump Co., Atlanta, Ga.
 G. Jaeger, Contractor, Rich Hill, Mo.
 W. M. Jewell, C. E., Chicago, Ill.
 Granbery Jackson, C. E., Nashville, Tenn.
 W. R. Jennison, Atlanta, Ga.
 M. H. Kelly, Contractor, Asheville, N. C.
 Keasby & Mattison Co., Atlanta, Ga.
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 Edwin F. Kitson, So. Contracting Co., Norfolk, Va.
 Xavier A. Kramer, C. E., Magnolia, Miss.
 Lambert Hoisting Eng. Co., Atlanta, Ga.
 Latta & Martin Pump Co., Hickory, N. C.
 W. M. Leftwich Co., Nashville, Tenn.
 M. T. Lewman & Co., Louisville, Ky.
 Martin J. Lide, C. E., Birmingham, Ala.
 A. M. Lockett & Co., New Orleans, La.
 W. D. Lovell, C. E., Minneapolis, Minn.
 Lynchburg Foundry & Machine Co., Lynchburg, Va.
 Lyon & Harvey, Engineers, Memphis, Tenn.
 J. B. McCrary, C. E., Atlanta, Ga.
 W. T. McCormick, C. E., Charlotte, N. C.
 L. W. McDaniel & Co., McComb City, Miss.
 D. B. McFadden, Austin Western Co., Atlanta, Ga.
 W. J. McGee, Contractor, Jackson, Miss.
 Jno. H. McGowan Co., Cincinnati, Ohio.
 Geo. McKay, Mgr., The Leadite Co., Philadelphia, Pa.

Jno. H. McKenzie Sons, Augusta, Ga.
 McQuatters Plumbing & Mch. Co., Hillsboro, Tex.
 Manufacturers' Record Publishing Co., Baltimore, Md.
 Wm. C. Massey, Massey Reporting Co., Atlanta, Ga.
 The Mann Building & Mfg. Co., Vicksburg, Miss.
 J. E. Minter, C. E., Macon, Ga.
 A. J. Mitchell, Adams Bagnall Co., Atlanta, Ga.
 H. Clay Moore, Atlanta, Ga.
 W. M. Money, Contractor, Laurel, Miss.
 Montague & Co., Chattanooga, Tenn.
 Luke D. Mullen, Coleman Bros., Boston, Mass.
 H. H. Meadows, Babcock & Wilcox Co., Atlanta, Ga.
 Howard Neely, Contractor, Chattanooga, Tenn.
 Edward J. O'Beirne, Engineer, Atlanta, Ga.
 Wm. J. Oliver, Contractor, Knoxville, Tenn.
 A. H. Olmsted, C. E., Lake City, S. C.
 J. A. Omberg, Jr., C. E., Memphis, Tenn.
 Orleans Engineering Co., New Orleans, La.
 A. M. Ozburn, Mfg. Agent, Chicago, Ill.
 Pacific Flush Tank Co., Chicago, Ill.
 Ralf H. Parker, So. Pav. & Con. Co., Chattanooga, Tenn.
 J. R. Patton, R. R. Contractor, Atlanta, Ill.
 A. L. Patterson, Contractor, Macon, Ga.
 Platt Iron Works Co., Atlanta, Ga.
 Arthur Pew, C. E., Atlanta, Ga.
 Piedmont Electric Co., Anderson, S. C.
 P. H. Porter, C. E., Clinton, Ky.
 W. C. Porter, Contractor, Laurel, Miss.
 Geo. Ad Preuss, Mfg. Agt., Augusta, Ga.
 E. G. Richardson, Good Roads Mch. Co., Atlanta, Ga.
 J. G. Robertson, Contractor, St. Paul, Minn.
 Roe Stephens Mfg. Co., O. W. Thomas, Detroit, Mich.
 C. D. Rogers, Contractor, Gloster, Miss.
 W. H. Roney, Chicago, Ill.
 Jos. M. Roman & Co., Engineers, Atlanta, Ga.
 J. T. Rose, Contractor, Atlanta, Ga.
 A. B. Sanders, Contractor, Shreveport, La.

Sciple Sons, Mfg. Agts., Atlanta, Ga.
 Earl F. Scott, M. E., Jackson, Miss.
 N. S. Sherman Machinery Co., Oklahoma City, Okla.
 J. S. Slicer, Lawyer, Atlanta, Ga.
 Southern Sewer Pipe Co., Birmingham, Ala.
 Spranley & Reed, Supplies, New Orleans, La.
 T. J. Spriggs, Dwyer Plumbg. & Htg. Co., St. Paul, Minn.
 Standard Underground Cable Co., Atlanta, Ga.
 W. M. Stearns, Fort Wayne Elec. Works, Atlanta, Ga.
 Roy W. Stookey, Contractor, Belleville, Ill.
 Sullivan & Long, Contractors, Bessemer, Ala.
 Subers Co., Manufacturers, Macon, Ga.
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 Geo. O. Tenney, Contractor, Spartanburg, S. C.
 E. H. Thompson, Agt., Crane Co., Macon, Ga.
 M. H. Treadwell & Co., Philadelphia, Pa.
 J. M. Umstadber, Mfrs. Agt., Norfolk, Va.
 United States Cast Iron Pipe & Fdy. Co., New York.
 M. C. Vandiver, Contractor, Atlanta, Ga.
 Virginia Bridge & Iron Co., Roanoke, and Atlanta.
 Jas. F. Vickery, Kelly Road Roll. Co., Atlanta, Ga.
 The Walsh & Weidner Boiler Co., Chattanooga, Tenn.
 Warren Webster Co., J. B. Dobson, Mgr., Atlanta, Ga.
 G. E. Watts Co., Manufacturers, Atlanta, Ga.
 Watson Flagg Engineering Co., New York.
 Weatherford & Carey Bros., Memphis, Tenn.
 Wesco Supply Co., St. Louis, Mo.
 Paul Wesley, Genl. Contractor, Atlanta, Ga.
 West Construction Co., Chattanooga, Tenn.
 Westinghouse Electric & Manufacturing Co., Atlanta.
 N. M. Whaley, Jno. A. Roebling Sons Co., Atlanta, Ga.
 Ben Willard, General Electric Co., New Orleans, La.
 A. D. Wilcox, C. E., Jackson, Miss.
 Wm. F. Wilcox, C. E., Meridian, Miss.
 Chas. C. Wilson, C. E., Columbia, S. C.
 Nisbet Wingfield, C. E., Augusta, Ga.
 Newton Wilcoxson, Mfg. Agt. Chicago, Ill.

BY-LAWS

ARTICLE I.

Name and Object.

The Association existing under these by-laws is a national association of manufacturers, engineers, contractors, material men, and others, who may be interested in public works.

Its objects are to standardize general specifications in engineering and architectural contracts; to make rules for the construction of public works; to improve the conditions of such construction; to hold meetings for the consideration of papers and for discussion upon all subjects connected with the construction of public works; and in all other ways to promote harmonious relations between manufacturers, engineers, contractors and officers of municipal corporations, and other public authorities, local, State or national, engaged in the construction of public works.

ARTICLE II.

Officers.

The officers shall consist of a President, three Vice-Presidents, Secretary, Treasurer, and an Executive Committee of nine members. They shall be elected by the members of the Association for a term of one year, or until their successors are elected and qualified, at each annual election thereafter, said election to be held immediately after the general business of the annual meeting of the Association and before its adjournment, commencing with the year 1905. All vacancies shall be filled by the Executive Committee.

ARTICLE III.

Government.

1. The government and management of the Association is confided to the Executive Committee.

2. Any member of the Executive Committee who shall fail to respond to three consecutive communications from the Chairman or the Secretary, concerning the business of the Association, unless he shall have previously obtained permission so to do from the Executive Committee, or shall present an excuse for such failure, shall be deemed to have resigned his office.

ARTICLE IV.

Executive Committee.

1. The Executive Committee shall have the control and management of the Association.

2. It shall have power to make or authorize all contracts for purchases.

3. To appoint such committees as it may consider necessary, and to define their duties.

4. To prescribe rules for the admission of papers and members.

5. To fix the time and place of the annual meeting of the Association, and to call special meetings of the Association to consider a specific subject.

6. To fill vacancies in the Executive Committee and officers caused by death, resignation or otherwise, until the next regular annual election of the Association.

7. The Executive Committee shall have the power to censure, suspend or expel from the Association any member, for just cause, by a vote of not less than five members, a copy of the charges having been first furnished to the accused with an opportunity of being heard in his defense.

8. To generally manage and conduct all matters necessary for the welfare of the Association, when such duty is not imposed upon some other officer by the by-laws.

9. There shall be no appeal from the decisions of the Executive Committee, except as hereinafter provided.

10. The Executive Committee shall have the right to call upon any member, including the accused, to make, on honor, a full statement, oral or written, in reference to any infraction of the rules of the Association.

11. In no case, when a resolution has been adopted at a meeting of the Executive Committee affecting the relations of a member towards the Association, shall such resolution be considered and acted upon at a subsequent meeting, without notice in writing being sent by the Secretary, or Chairman, to each member of the Executive Committee, at least one week before the meeting, that such action is contemplated.

12. The Executive Committee shall meet as often as may become necessary, or conduct its business by correspondence.

13. Special meetings of the Executive Committee may be called to order by the Chairman or of any five of its members.

14. A majority of its members shall constitute a quorum of the Executive Committee.

ARTICLE V.

Membership.

1. Members shall be classed as regular and honorary.

2. Regular members are such as are admitted to membership, being identified with the interests of the Association, and are subject to dues and assessments. They alone have the right to vote and hold office.

3. Honorary members are such as are elected to honorary membership by the Association, and are not subject to dues and assessments.

4. The regular membership is unlimited.

5. The Secretary shall enter the date of application, which shall be referred to the Executive Committee, the proceedings of which thereon shall be secret and confidential, and no member of said Committee shall be questioned as to the action of the committee.

6. It shall be the duty of the Executive Committee to make a careful examination and to consider all communications in reference to each individual proposed.

7. It shall be the duty of each member of the Association possessed of any information derogatory to the character of the applicants, or knowing any good reason why the applicants should not become members, to communicate the same to the committee. All such communications shall be held by the committee in strict confidence.

8. Two negative votes in the Executive Committee shall prevent the election of any person for membership, and the application shall be returned. The Executive Committee shall, at its regular meetings, or at such subsequent time as it may appoint, vote on the election or rejection of each applicant for membership.

9. After the election the Secretary shall notify the elected thereof, and furnish him with a copy of the by-laws and rules; and upon his acknowledgement thereof upon the form prescribed by the Association, he shall be considered as having subscribed to the by-laws and rules, and upon payment of the membership fee, he shall be entitled to all the rights of a member.

10. Any person elected and not complying with the foregoing requirements within thirty days from the time of his election, shall be considered as having declined to become a member, and his election shall be void.

ARTICLE VI.

Resignations.

All resignations shall be in writing, addressed to the Secretary.

ARTICLE VII.

Dues.

1. The membership fee shall be Five Dollars.

2. The annual dues shall be Two Dollars, payable in advance, at or before the time appointed for the annual meeting. Members elected before the annual meeting shall not be liable for dues before the next meeting.

ARTICLE VIII.

Penalties.

Any member who shall fail to pay the dues for three months after they become due shall, upon the facts being presented to the Executive Committee, cease to be a member.

ARTICLE IX.

Notices.

Any member may inscribe in a book to be kept by the Secretary of the Association, a mail address for notices prescribed by the by-laws and rules. In the absence of such inscription such notices shall be served by depositing them in the mail addressed to him at his place of business at time of admission to membership, and he shall be held to have received them within five days after they are so mailed.

ARTICLE X.

Meetings.

1. There shall be an annual meeting of the Association, at such time and place as the Executive Committee may name, for reception and consideration of the reports of the officers and committees, and for the consideration of such other business as may be brought before it.

2. If no quorum be present, the presiding officer shall adjourn the meeting to any other day with the same effect as if held as above.

3. Upon the written request of twenty members, the Executive Committee shall call a special meeting to consider a specific subject, and at such meeting no other business shall be considered except that specified in the call.

4. Twenty members shall constitute a quorum at any meeting of the Association.

5. The order of business at regular Association meetings shall be:

1. Reading of the Minutes.
2. Reports of Officers.
3. Reports of Committees.
4. General Business.
5. Election of Officers.

ARTICLE XI.

Election of Officers.

1. The first election to be held under these by-laws shall be before the conclusion of each annual meeting, commencing with the year 1905, for a President, three Vice-Presidents, Treasurer, Secretary, and nine members of the Executive Committee. Said officers shall hold their offices for one year, and until their successors are elected.

2. Members in default for dues or other indebtedness to the Association are not entitled to vote.

3. The persons receiving the highest number of votes shall be declared elected, provided not less than twenty votes have been cast; and no election shall be valid unless twenty votes have been cast thereat. Provided, however, at any annual meeting it shall be lawful to direct the casting of the vote of the Association for any one or more of the officers to be elected, and if the motion be sus-

tained by as many as four-fifths of those present and voting, such election shall be held in this manner.

4. In the event there is no election, the vacancies shall be filled by the Executive Committee as hereinbefore provided; but such election shall only be for the unexpired term.

ARTICLE XII.

Duty of Officers.

1. The President, and in his absence one of the Vice-Presidents, shall preside at all meetings of the Association. In the event of their absence, a meeting of the Association or of the Executive Committee may elect a presiding officer.

2. The Secretary shall give notice to the members of all meetings of the Association; and of any papers or special business to be considered; record the proceedings thereof; call the roll of members; note the absentees; receive and receipt for all moneys due and belonging to the Association, and pay same to Treasurer; issue all orders on the Treasurer, as approved by the Executive Committee, for the payment of all bills; keep the accounts of the Association for all moneys, purchases, etc., passing through his hands; make a report to the Association at each regular meeting and such reports to the Executive Committee as it may require; attend to all correspondence, conferring with the Chairman of the Executive Committee; receive applications for membership, transmit them to the Executive Committee, and attend to all matters pertaining to his office.

3. The Treasurer will be the custodian of the finances of the Association, and will receive from the Secretary and receipt for all moneys due and belonging to the Association; pay all bills on order of the Secretary when approved by Executive Committee; keep an account of all moneys received or paid for the Association; make a re-

port to the Association at each regular meeting of the receipts and expenditures, and of the financial condition of the Association.

4. The services of its officers and Executive Committee shall be furnished gratuitously to the Association.

ARTICLE XIII.

Appeals.

A member expelled, or whose membership has been terminated by the action of the Executive Committee, shall have the right of appealing his case to the next annual meeting of the Association for its decision, upon giving notice to the Secretary of his intended action at least two weeks before such meeting.

ARTICLE XIV.

Interpretation.

The interpretation of the by-laws and rules shall rest with the Executive Committee.

ARTICLE XV.

Parliamentary Rules.

The deliberations of the Association shall be governed by Reed's Parliamentary Rules.

ARTICLE XVI.

Amendments and Alterations.

Amendments to the by-laws may be made at any annual meeting of the Association, by a two-thirds vote of the members present.

RULES

OF THE

American Public Works Association

1. When State or Municipal Statutes conflict with Association rules, the latter shall be waived.

2. When work is done on a percentage basis, security should be given to guarantee faithful performance of the work.

3. Architects and engineers shall not bid on contract for work advertised to be let under their plans and specifications.

4. No bids shall be asked until money to pay for the work has been provided.

5. Bids shall be opened and read in public at the time specified for receiving bids.

6. No bids shall be received after time specified.

7. No bids shall be withdrawn after time set for opening bids.

8. Illegibility or ambiguity shall invalidate a bid.

9. Bidders shall not be permitted to change prices stated in bids.

10. Bids shall state specifically, make of apparatus or machinery proposed, and same shall be specified in contract.

11. When all bids are rejected, new bids shall not be received on the same specifications without readvertising.

12. The amount of certified check required shall be stated in the advertisement calling for bids.

13. Bid bonds may be substituted for certified checks.

14. Checks or bid bonds shall be returned to all but the successful bidder as soon as award of contract is made, and to successful bidders as soon as contract is signed, accepted, and bond filed, if required.

15. Award of contract shall be made within thirty days (30 days) after bids have been opened, or checks returned to bidders.

16. Bond shall not exceed twenty-five per cent. (25%) of contract price, unless otherwise provided by law.

17. Twenty days shall be allowed contractor in which to furnish a satisfactory bond.

18. In event of discrepancies between the drawing and specifications, decision of the engineer shall be final.

19. All instructions regarding work shall be given by the engineer.

20. Extra work shall only be done on written order of the engineer.

21. In deducting material or work not required, only the cost to the contractor shall be deducted. This applies to Lump Sum contracts only.

22. Changes in construction shall not be made to lessen quantities of material in transit, or in progress of manufacture, unless contractor be paid for all actual loss occasioned.

23. When a specific make of machinery or apparatus is specified in contract, same shall be furnished in accordance with manufacturers' plans and specifications, submitted with bid.

24. Engineer or his authorized assistants shall at all times have access to the work and materials, for purpose of inspection, and have notice of concealed work before it is covered.

25. In event of emergency work, contractor shall notify engineer, and engineer shall furnish inspector.

26. When work done in regular progress of the contract and ordered torn down for purpose of inspection, if found to be in accordance with the specifications, it shall be at the cost of contractee.

27. Engineer shall give written notice to the contractor when work or material has been rejected.

28. Monthly estimate shall be based on the contract price, and shall include all material delivered and accepted, and labor performed during previous months.

29. Monthly estimates shall be made on or before the fifth day of each month, unless otherwise agreed upon.

30. Not more than fifteen per cent. (15%), nor less than ten per cent. (10%) of monthly estimates shall be retained by contractee until work is completed.

31. Time shall be allowed contractor for delay caused by strikes, accidents, or other causes beyond his control.

32. When the work is completed, engineer shall accept or reject same in writing.

33. Contractor is released from all future responsibility when contractee takes possession of plant, whether settlement has been made or not, unless otherwise agreed.

34. When time guarantee has been agreed upon, a separate security shall be furnished.

35. When work is accepted, percentage retained shall be paid in final settlement, and bond shall be released and returned.

36. Arbitration shall be resorted to in all cases before applying to the courts.

37. When material is bought f. o. b. direct from manufacturer by the city, only five per cent. (5%) shall be retained.

NOTE: In drawing up specifications, if engineers will insert, "ALL WORK DONE UNDER RULES OF THE AMERICAN PUBLIC WORKS ASSOCIATION," it will not be necessary to print rules in full in specifications.

MEMBERS

Who Attended The

SECOND ANNUAL CONVENTION AT ATLANTA

H. H. Abree, Abree & Edwards, ...	Hickory, N. C.
W. E. Austin, W. E. Austin & Co., ...	Atlanta, Ga.
James E. Brady, The John H. McGowan Co., ...	Cincinnati, Ohio.
C. A. Brown, Standard Underground Cable Co., ...	Atlanta, Ga.
A. J. Bowron, The Dimmick Pipe Co., ...	Birmingham, Ala.
E. C. Butner, Platt Iron Works Co., ...	Atlanta, Ga.
J. A. Brady, Bostrum Brady Mfg. Co., ...	Atlanta, Ga.
P. J. Casey, The Casey & Hedges Mfg. Co., ...	Chattanooga, Tenn.
C. H. Campbell, Fabric Fire Hose Co., ...	Atlanta, Ga.
M. F. Cole, R. D. Cole Mfg. Co., ...	Newnan, Ga.
H. A. Coles, Westinghouse Electric & Mfg. Co., ...	Atlanta, Ga.
P. J. Crimmins, Herron Pump and Foundry Co., ...	Chattanooga, Tenn.
N. Wilson Davis, C. E., ...	Harrisonburg, Va.
Mark Dean, Central Foundry Co., ...	New York.
Fair Dodd, Aetna Indemnity Co., ...	Atlanta, Ga.
Ben. C. Fennel, Lombard Iron Works, ...	Atlanta, Ga.
W. H. Flint, U. S. Cast Iron Pipe & Foundry Co., ...	Chattanooga, Tenn.
E. H. Ginn, General Electric Co., ...	Atlanta, Ga.
A. F. Giles, General Electric Co., ...	Atlanta, Ga.
J. R. Gordon, Westinghouse Electric & Mfg. Co., ...	Atlanta, Ga.
T. J. Halsey, The Fairbanks Co., ...	New Orleans, La.
W. H. Harrison, Mfrs. Agt., ...	Atlanta, Ga.
P. O. Hebert, Eureka Fire Hose Co., ...	Atlanta, Ga.
N. B. Hudson, R. D. Cole Mfg. Co., ...	Newnan, Ga.
Richard C. Huston, C. E., ...	Hattiesburg, Miss.
W. E. Herring, Platt Iron Works Co., ...	Atlanta, Ga.
P. A. Ivy, American Cast Iron Pipe Co., ...	Birmingham, Ala.
W. R. Jennison, Lane Bodley Co., ...	Atlanta, Ga.
Adam W. Jones, International Pump Co., ...	Atlanta, Ga.
William B. King, George A. & Wm. B. King, ...	Washington, D. C.
E. F. Kitson, Southern Contracting Co., ...	Norfolk, Va.
C. M. Ladd, Chicago Bridge & Iron Works, ...	Chicago, Ill.

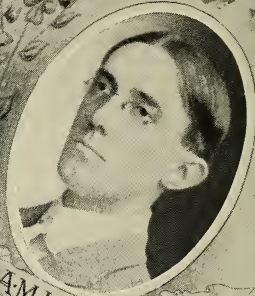
Moise De Leon, Contractor,.....Atlanta, Ga.
 J. W. Leroux, Virginia Bridge & Iron Co.,.....Atlanta, Ga.
 Morgan Llewellyn, The Walsh & Weidner Boiler Co.,..Chattanooga, Tenn.
 A. M. Lockett, A. M. Lockett & Co.,.....New Orleans, La.
 W. C. Massey, Massey Reporting Co.,.....Atlanta, Ga.
 H. H. Meadows, The Babcock & Wilcox Co.,.....Atlanta, Ga.
 A. J. Mitchell, Adams Bagnall Co.,.....Atlanta, Ga.
 H. Clay Moore, Mfrs. Agt.,.....Atlanta, Ga.
 J. H. Mueller, Atlas Engine Works,.....Atlanta, Ga.
 J. B. McCrary, Engineer,.....Atlanta, Ga.
 D. B. McFadden, Austin Western Co.,.....Atlanta, Ga.
 George McKay, The Leadite Co.,.....Philadelphia, Pa.
 Chas. F. McKenzie, John H. McKenzie & Sons,.....Augusta, Ga.
 Howard Neely, Contractor,.....Chattanooga, Tenn.
 John W. Neil, The John H. McGowan Co.,.....Cincinnati, Ohio.
 Edward J. O'Beirne, Engineer,.....Atlanta, Ga.
 Ralph H. Parker, Southern Paving Co.,.....Chattanooga, Tenn.
 Arthur Pew, Engineer,.....Atlanta, Ga.
 W. M. Rapp, Engineer, Atlanta Water Works,.....Atlanta, Ga.
 E. G. Richardson, Good Roads Machinery Co.,.....Atlanta, Ga.
 Sol Romm, General Contracting Co.,.....Atlanta, Ga.
 J. T. Rose, Contractor,.....Atlanta, Ga.
 J. S. Slicer, Attorney,.....Atlanta, Ga.
 W. M. Stearns, Fort Wayne Electric Works,.....Atlanta, Ga.
 A. R. Sterner, General Electric Co.,.....Atlanta, Ga.
 James Sloan, Southern Sewer Pipe Co.,.....Birmingham, Ala.
 Geo. O. Tenney, Engineer,.....Spartanburg, S. C.
 Maurice W. Thomas, Allis Chalmers Co.,.....Atlanta, Ga.
 M. C. Vandiver, Contractor,.....Atlanta, Ga.
 J. F. Vickery, Mfrs. Agt.,.....Atlanta, Ga.
 Geo. O. Watson, Watson Flagg Engineering Co.,.....New York.
 G. E. Watts, G. E. Watts Company,.....Atlanta, Ga.
 W. F. Wilcox, Engineer,.....Meridian, Miss.
 Chas. C. Wilson, Engineer,.....Columbia, S. C.
 H. D. Winn, Westinghouse Electric & Mfg. Co.,.....Atlanta, Ga.
 Park Woodward, Atlanta, Waterworks,.....Atlanta, Ga.



John W. NEIL



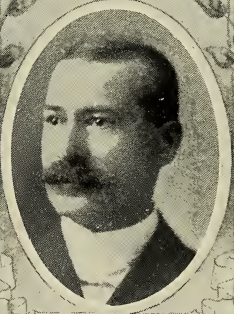
AJ. BOWRON



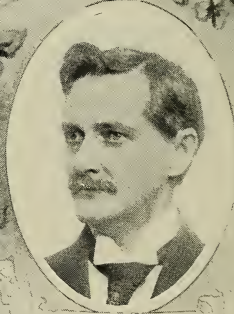
A.M. LOCKETT



C.M. LADD



EDW. J. O'BEIRNE



MAURICE W. THOMAS



C.F. MCKENZIE



WM B. KING



J.S. SLICER

EXECUTIVE COMMITTEE

PROCEEDINGS
OF THE
American Public Works Association
AT THE
SECOND ANNUAL CONVENTION.

FIRST DAY'S PROCEEDINGS.

Hotel Aragon, Atlanta, Ga., Sept. 14th, 1906.

The Convention met and was called to order by R. C. Huston, Vice-President, at 10:30 a. m.

The Chairman: We will have a few remarks from Mr. Slicer, who will introduce Hon. Jas. G. Woodward, Mayor of Atlanta.

Mr. Slicer: Mr. Chairman and gentlemen of the Association, in the absence of the President, which will be referred to later, this honor has been conferred upon me. When one of our members and my good friend suggested that I become a member of the American Public Works Association, I told him I did not think a lawyer would be allowed in anything like that, but he insisted that anybody who had a genuine interest in the purposes for which this organization was formed could become a member, and after he explained to me what the purposes were, I deemed it a great honor to be asked and allowed to become a member of this organization which has been organized for the purpose of promoting absolute integrity, honesty and fairness, in the letting of all public contracts in the United States.

When you realize how much money is spent every year by our National Government, by our States and by our

Cities, in public works, and in improvements and betterments, you can then realize what a vast deal of good an organization of this kind can do, and especially when we hear so much nowadays about the graft among insurance companies and the management of railroads, in the large municipal contracts and, in fact, in every line of business, it is especially gratifying to know that men who compose this Association—such a high class of men—have gotten together for the purpose of forming this organization.

In our little city here we let a few public contracts once in a while. I think it has only been a short time ago when some representative of the United States Government came here and looked over the City's books, and stated that Atlanta put more money, that is, a larger per cent., in permanent improvements than any other city in the State.

Now, gentlemen, there is no man in the city of Atlanta who has had so much to do with the letting of these public contracts—I don't believe there are any five men who have had so much to do with it—as the gentleman from whom we have the honor of receiving our welcome today. He has been in the City Government, in the aldermanic board, and as Mayor of the city twice, and has, I think, given his services to the city for over fifteen years. While he has been connected with the council, and as Mayor, he has been chairman of the committee that built our police barracks. It was through his influence and efforts that we have today the greatest improvement that this city has ever made, and that is the Whitehall street viaduct. During the past two years two very fine city schools have been built under his supervision. He was on a committee that had a great deal to do with changing the lighting of the city from gas to electric lights. While he was connected with the council the motive power of the street railway has been

changed from mules and horses to electric power. I know of no man who is more fitting to welcome us today than our present Mayor, and then, gentlemen, he has always been a friend to the mechanic, the contractor, and the engineer, in connection with these contracts, looking out for the city's interest, but always seeing that they had justice and fairness done them; and it is with great pleasure that I introduce to you Honorable James G. Woodward, Mayor of Atlanta. (Applause).

Mayor Woodward: Gentlemen of the Public Works Convention—It is with pleasure that I greet you and welcome you to our city. I must thank my friend, Slicer, for the compliments he has passed upon me. It is true, I have been connected with the city government more than any man in the history of the city, that is, in a public way, other than the municipal officers. It is true I have been there through some of the most trying times in the growth of our city, and the points that he has named will certainly convince any reasonable man that these changes from the old day to the present have been of great benefit to the community.

We have a great many public contracts; all do not go to the extent, possibly of those that Mr. Slicer has mentioned, but many, such as street paving and the construction of a sewer system, are now being extended. There is nothing that is of greater benefit than a proper sewer system. There has been a great deal done here in the past fifteen years in the way of sewer construction. We also have had a great change in our Water Works system. Up to about the year 1889 the water works plant was in the Southern part of the city, out about four miles. A few years later we established a new plant out on the Chattahoochee river. You can readily understand that this was not only a large but a most difficult task. The two plants being upon opposite sides of the city necessitated the change from large pipes to

small upon one side, and small pipes to large upon the other, so we have had to change our entire water works system in the last fifteen years.

You can look around you and see what a city this is. It is a modern built place. It was my pleasure to know it since 1852. Thirty-five or forty years ago there was nothing here. You all remember our friend Sherman passed through here. He left us a splendid site to build a city on, and that is all he did leave. (Laughter and applause.) And the present time will show you whether we have made good use of the site. You may say Atlanta is a new city, and the main part of it has been built within the last ten years, and a great deal within the last five or six years. The greater part of these office buildings you see here have been built within the last six years, so you can see what a city you have come to, and it appears to me that men, in your line of business, while you are not in New York quite, you are mighty near it. As far as we have got it is as good, and you can go ahead along any line of contracting here that you wish and find something that will interest you, so I am happy to greet you and welcome you to a city of that kind, and hope that your stay with us will be more than pleasant. If there is anything here you want that you do not see, ask somebody, and you will find it. I just want to say the city is wide open; the keys are thrown away. Enjoy yourselves while you are here. We know that some of you are traveling men and will represent us at other places. We want you to come with us often and want to say to you that you are welcome to the biggest town in the South, and it is the only one that is built up strictly on its own merit. I have been here through its whole life, and I often stand and wonder what is the cause of its growth. We have not enough houses to hold the people; certain houses that have been condemned by an incoming railroad with which I am con-

nected, the A. B. & A., being on the right of way, have been re-rented by the former tenants for a single month only. They know they cannot stay in them, but it is extremely difficult to find houses for their accommodation.

I will be glad to supply you with pamphlets showing the different manufacturing establishments that the city has, numbering something like three hundred, the most of which are small. It is the small manufacturers that help a city, I believe, rather than the very large ones. We have a large quantity of industries scattered all over the city, but the smaller ones, employing from five to twenty men, are the ones to which I attribute principally the growth of this city. Three hundred of these to a population of approximately one hundred and twenty-five thousand inhabitants, is, I think, a large proportion, and speaks well for our city. I do not know how long this wonderful growth will last in this inland city, but I will say that whenever you take a notion to come and live here, we invite you to come and stay with us in the best place on earth. We hope that on your return journey everything will be pleasant, and that you will reach your homes safely, and that those you have left behind will be found well and happy. (Applause).

Mr. Dodd: Mr. Chairman, inasmuch as the Chief Executive of this city has given us such an interesting talk and such a hearty welcome, I move we extend to him a rising vote of thanks for this kindness and courtesy on his part.

The motion was unanimously adopted.

Mayor Woodward: I thank you very much, gentlemen. Now, gentlemen, I am a little behind time. I am due at my office at ten o'clock, and I hope you will excuse me for the rest of the meeting. I will be pleased at any time to have any of you call at my office. If there

is anything I can do for you while you are in the city, let me know what it is, and don't be afraid to ask. (Applause).

PRESIDENT'S ADDRESS.

Vice-President Huston:

Gentlemen of the American Public Works Association—

Owing to the regrettable illness of our President, the duty involves upon me of making the President's address. President Omberg is ill at Mamoroneck, N. Y., and I know the best wishes of all members go out to him for a speedy recovery, and I think it would be proper to telegraph to him an expression of our sympathy and good wishes.

The Association has now about two hundred members, and we are to be congratulated on its rapid growth. We have a broad field, and can accomplish great good by harmoniously working together for the good of all members and the public at large, whose interests we represent.

Our Association will, in a few years, we hope, have as large a membership in the North as we now have in the South.

With this object in view, we must look forward and plan for the future. There is no organization of a like character in existence. Your Association represents the practical element, or what may be called the business element, in engineering and the construction of public works. As our Association increases in membership, it will naturally divide into three branches, viz.: manufacturing, engineering, and contracting. Each branch or section can, and necessarily will, when the membership exceeds one thousand members, meet in separate rooms and discuss the particular questions most affecting its interests, and after deciding on a definite course of action, bring the matter before the Association, which will expedite business and prove of great value.

It may, therefore, be wise to look forward to the organizing of subsidiary branches to represent the manufacturing, engineering and contracting interests.

This Association is the only organization that has undertaken the improvement of conditions in connection with public lettings, and there is plenty of room for work in this direction.

I would call your attention in this connection to the fact that there are no regulations in our by-laws requiring members to observe the rules adopted by the Association.

I declare the Convention now open for the transaction of business, and the first business in order is the report of the Secretary. (Applause.)

SECRETARY'S REPORT.

Mr. President and Gentlemen—

Your Secretary has but little to report concerning the progress of the work of the Association since the organization at Gulfport, August 26-27, 1904.

Some of the contractors, engineers and material men have given close attention to the rules adopted, but not as many of them as we would like to see become enthused in the work and adoption of the rules in the transaction of lettings of contracts. There is some excuse for this lukewarmness in the fact that we were prevented from holding our annual meeting at Chattanooga, Aug. 31st, 1905, which threw a damper over the interest of the members generally. The meeting at Chattanooga was carefully worked up, and we expected much benefit to ensue from it. Unfortunately at that time the Army of the Stigomia Fasciata invaded the gulf coast and the mosquito fleet attacked the port of New Orleans, where many of our members reside, and the quarantine held them for a while; however, it is said they distinguished themselves in the volunteer service, nailing down hatches

with mosquito bars, pouring oil on muddy waters, and spraying the marsh. One Lucien Glenn, captain of the Boll Weevil Guards, was breveted on the field for bravery; and Henry Malochee led the midnight attack on the oyster beds of Bayou LaFourche—it is claimed the shells lay around so thick they'd cut your feet.

This is the first time we have met since the organization, two years ago. In that time your Secretary has paid his attention to increasing the membership and dodging many pertinent inquiries. One member from Missouri wanted me to show him results. Results can only come from members' personal familiarity with the rules and their adoption in their work, and all of us pulling together for better business and the manner of conducting the same. The officers can only manage the Association according to the rules prescribed for its management and urge the adoption of the rules by its members and their co-operation in the work of the Association. All matters of any importance that have come up have been referred to your executive committee and have been handled by them. Your Secretary and Target is always glad to hear from the members, be it of criticism, commendation or the payment of dues; and he begs you to remember the last named item, for it has been necessary in some cases to send more than one notice.

One hundred and forty-eight members have qualified, and about forty are yet to be heard from. I feel sure after this good meeting they will respond.

The services of the Secretary have been cheerfully and willingly contributed; lack of time for such services, however, makes him feel that the Association may soon decide to secure a Secretary who could give all of his time to the work.

September 12th, 1906.

Collections from 148 members—fees	\$411.00
dues	1.00

\$412.00

Paid into Treasurer—

Ck. No. 2 Oct. 25, 1904\$ 35.00

Ck. No. 3 Nov. 16, 1904 32.00

Ck. No. 4 Dec. 5, 1905 24.00

Ck. No. 6 Mch. 30, 1905 91.00

Ck. No. 7 Sept. 13, 1906 ... 172.00

Aug. 27, 1904, col. retained by Tr.	58.00	\$412.00
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Bills approved by Secretary for payment by Treasurer—

Dec. 3, 1904, Postage and printing\$ 50.15

Dec. 29, 1905, Postage and printing 51.78

\$101.93

Respectfully,

Wm. H. FLINT, Secretary.

(Applause).

Upon motion the report of the Secretary was received with thanks.

Mr. Crimmins: I move that the Association instruct the Secretary to telegraph President Omberg, to show our remembrance of his illness, and conveying our hopes for his speedy recovery.

The motion was seconded by Mr. Thomas, and adopted unanimously.

The next business in order was the report of the Treasurer, but owing to his absence, and the information that he was on his way and would arrive soon, the report was deferred until the second day.

The Chairman: The next order of business is the report of the Executive Committee.

REPORT OF EXECUTIVE COMMITTEE.

Mr. O'Beirne: Your Executive Committee is unable to make a report of the finances of the Association, owing to the absence of Treasurer Malochee.

Since our organization meeting at Gulfport, August 26th, 1904, more than two years have passed, and our Association is now entering upon the third year of its existence.

We adopted at that meeting a set of laws and rules to guide our members, and after a trial of two years but few complaints have been heard against the rules, which are every day growing in general favor. It is hoped by your Executive Committee that the same conservative spirit which characterized the Gulfport meeting will be shown in your deliberations here.

Our by-laws are in general satisfactory, but your Executive Committee would ask that you consider the following changes in same:

1st. That the second paragraph in Article I, of the by-laws be changed so as to read as follows: "Its objects are to standardize general specifications in engineering and architectural contracts, and to make rules for and encourage the construction of public works, and to encourage papers, suggestions and deliberations by its members, for the improvement thereof."

2nd. That Section 5, Article IV of the by-laws be struck out.

3rd. That Sections 9 and 14, Article IV, of the by-laws be struck out.

4th. That Section 5 of Article V of the by-laws be struck out.

5th. That the word "three" in Section 1, Article VII, be struck out and the word "five" inserted in its place; and the word "one" in Section 2, Article VII, be struck out the word "two" inserted in its stead.

Our rules have attracted considerable favorable public

comment, and while changes may be suggested by members to the Committee on Rules, your Executive Committee recommends:

6th. That Rule No. 20 be changed so as to read as follows: "Extra work shall only be done on written order of the engineer."

7th. That the word "ten" in rule No. 30 be struck out and the word "fifteen" be inserted in its place.

8th. That the word "ten" in rule No. 34 be struck out and the word "fifteen" be inserted in its place.

9th. That all words after the word "returned" in Rule No. 34 be struck out.

34 be changed to "fifteen."

Our members are busy men, and we realize that they can give but a limited time to the advancement of their Association; and we hope the day is not far distant when we can secure the services of a paid Secretary who will devote his entire time to the interests of the Association. The services of our officers are voluntary, and they, particularly the Secretary, have been more generous than we have a right to expect.

We had sixty-four names to the call for our organization meeting, and forty-nine attended. Our membership has increased quietly and without noise to one hundred and ninety-one. People interested in public works have only to be told the objects of this Association to obtain their application for membership. Your Executive Committee believes that the American Public Works Association is destined to grow into a large and useful national body. It believes that the day is not far distant when it will be quoted as the authority on all rules pertaining to the construction of public works and contract work in particular.

In reference to our rules, there are no regulations in our by-laws requiring members to observe the rules adopted by our Association. This question was carefully

considered at our last meeting, and it was decided to leave the matter open until this meeting. In line with this conservative course previously adopted, your Executive Committee would recommend that all members adopt the rules to the fullest extent possible, but that action making the observance of the rules obligatory on all members be postponed, as we believe that the rules will eventually become recognized on their own merits. We would, however, ask that all members look with disfavor on violations of the rules, and give them the most favorable support.

We would also recommend that all members of this Association print across the top of their letter heads the following: "All work done under the rules of the American Public Works Association."

We further recommend that the by-laws be so amended as to allow of three Vice-Presidents for the Association.

Respectfully submitted,
THE EXECUTIVE COMMITTEE,
Edward J. O'Beirne, Chairman.

The Chairman: Gentlemen, you have heard the report of the Executive Committee and the changes suggested. What will you do with it?

Mr. Butner: Mr. Chairman, I move that the report be adopted and that part regarding changes in the rules be referred to the Committee on Rules.

The motion was adopted.

Mr. Crimmins: Mr. Chairman, is there any reason why we should not take up the suggestion as to by-laws at this time?

The Chairman: I do not think so.

A member: I move that the recommendations in regard to by-laws be taken up, one by one, at this time.

Action upon this motion was deferred until the names of the members present could be obtained.

The Chairman: All who have any motions to make, or remarks of any kind, are requested, as soon as you arise and address the chair, to call your name, because I am not familiar with all the names of the members, and I would like to have you do that, as we cannot get them in the record any other way.

Reporter's Note.—This request was disregarded, and the members being total strangers to the reporter, it is, of course, impossible for him to give the names of speakers, except as he learns them from hearing them called during the proceedings.

The Chairman: While we are waiting, we will have a paper on "The Merits of Leadite," by Mr. George McKay, of Philadelphia.

Mr. McKay:

Leadite, an economical composition for pipe joints.

Leadite is, as its name would imply, a substitute for lead for caulking water mains, gas mains, soil pipes, sewer pipes, etc. Leadite is a composition of mineral ingredients, suitable for making the strongest and most enduring joint known at the present time. These ingredients are very finely ground, thoroughly mixed and so proportioned that no difference can possibly exist in any quantity. Each ingredient is weighed exactly for each batch before mixing. The process of manufacture demands great care to get the best results. The inventor has made many tests in the past fourteen years, being very much interested in some of the excavations of ancient Pompeii, where a material very similar to Leadite was used by the ancients, which had a wonderful sticking and tensile strength and was used for jointing almost everything. Ornamental castings and figures were made, which have stood the test of ages and are perfect to-day. Rust and decay seem to have no effect on this material.

Leadite was tested by the Water Department of Philadelphia in various ways before it was put into practical

use in making joints on water mains in service. One test was made to jar the joint by allowing two pieces of extra heavy 6-inch pipe, each 5 feet long, joined by Leadite, to drop 8 feet on a log, then to drop on the reverse side. When water pressure was applied this joint stood dry at 130 pounds pressure to the square inch. A freezing test was also tried. Two lines of 6-inch pipe, 98 feet long; one line was jointed with Leadite, the other with lead. These two lines were filled with water and allowed to freeze over night. The lead line parted in the middle; the Leadite joints were all perfect in the morning, but the plug was cut in half and blown out—the other half was intact.

Having satisfied the engineers in charge of these tests, it was decided to lay some pipe of all sizes with Leadite joints to test its durability. About four miles of water mains were laid, which were examined several times to find if there were any leaks. Not one leak was ever found on this work. Now twelve years in service.

Various other tests have been made where lead had failed to hold. Leadite has been successfully used. It has been demonstrated again and again that a Leadite joint, when properly cast, cannot be blown out by water pressure; it will stand as long as the pipe will stand. No doubt it will leak for a little while under a heavy pressure, but will in every case get tight and remain tight. A line of 4-inch pipe, 100 feet long, made May, 1905, by an inexperienced hand, is now in the water works yard at Twenty-sixth and Master streets, Philadelphia, exposed to all kinds of weather. This line has been tested lately to 360 pounds pressure to the square inch, showing that expansion and contraction have not injured the joints.

Leadite when melted in block weighs about 118 pounds per cubic foot. This is just one-sixth the weight of lead—708 pounds, so it is easy to see that one ton of Leadite

will make as many joints as five tons of lead. Leadite needs no caulking, as it takes a giant grip on the pipe. This is a very important item in the use of Leadite, as caulking adds from 15 to 20 per cent. to the cost of lead joints. Lead joints are at their best when newly cast and caulked. Leadite joints are much stronger after being a year in service.

James C. Bayles, M. E., Ph. D., in his report on leakage of water mains distributing through cast iron pipes with hub and spigot joints, caulked with lead, says: "Very few public water works which have been more than one year in operation deliver at points of known use or waste fifty per cent. of the water which enter their mains. In my judgment the average leakage is from sixty to sixty-six per cent.; in neglected systems it is often much more."

Sir Frederick Bramwell prepared a report for the British Institution of Civil Engineers, showing the waste of water in underground leakage from mains in more than one hundred British cities and towns. His diagram shows that of every three gallons measured into the mains two are lost by leakage underground and one is used or wasted as may be.

Sir William Hope, C. E., an eminent British water works engineer, in his paper read before the Institute of Civil Engineers, says: "Even now a majority of the water undertakings of this country lose by leakage more than one-half of the total quantity of water supplied from the source. The proportion is often higher."

From these statements of expert engineers we can easily see the importance of getting something better than lead for making joints on water mains, etc. We claim that Leadite when properly poured in the joint will make a permanent watertight joint that will never leak after being in service a few days under any pressure usual in water works construction. This claim may seem too strong, as many newly-made joints will leak at less

than one hundred pounds pressure, but when the water is turned on these joints will begin to close up or get tight and in a few days at most will be perfectly tight and remain so.

The principal causes of leakage in lead joints are (for either water or gas mains) first, expansion and contraction, unequal settlement, impairment by oxidation and electrolysis, jar, shock and vibration.

Expansion and contraction are constant. Pipes in the ground are never at rest, but lengthen and shorten with each variation of temperature. This movement is slight, rarely exceeding two inches in a thousand feet through the course of a year, but it is irresistible. About eighty per cent. of leakage is attributable to expansion and contraction. Leadite joints, as shown by line of pipe exposed to heat and cold, now 15 months (before referred to), are not affected, but stand 260 pounds more pressure than when first made.

Unequal settlement, which cause lead joints to give way and leak. Leadite joints have been thoroughly tested on this line by removing the blocking from under a line of pipe, except the blocking at each end, allowing the line of 98 feet to sink two feet in the centre, without causing a leak when one hundred pounds pressure was on this line. Oxidation and electrolysis, which eat out lead joints, have no effect on Leadite whatever.

Jar, shock and vibration. On these points we have amply tested Leadite joints, as before stated. We also made a test on the line of pipe now at Twenty-sixth and Master streets water works yard by striking the bonnet on the end of line with a heavy sledge ten times, trying to knock it off. This was considered a very severe test, as this line now stands a pressure of 360 pounds to the square inch.

Leadite is shipped in powder form in barrels and bags—300 and 350-pound barrels and 100-pound bags. Bags



HOTEL, ARAGON, WHERE SECOND ANNUAL CONVENTION WAS HELD—SEPT. 14-15, 1906.
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are charged until returned in good order and freight prepaid.

Leadite is melted and poured just the same as lead. Only about 400 degrees of heat is needed to melt Leadite. We recommend a gasoline furnace for this purpose, as the heat is more easily regulated than a coke furnace. Leadite requires to be kept stirred when it begins to melt and until it is as liquid as oil and until the foam or froth dies off—then it is ready for pouring.

As Leadite is only one-sixth the weight of lead, a gate or cup three inches higher than be" of pipe should be made of pipe clay, so that the top of joint may be well filled with Leadite. This pouring gate can be knocked off when the Leadite is perfectly chilled, and can be remelted, so there is no waste of material. Should the Leadite when melting get overheated it will get stiff and will not pour freely. Remove the heat and keep mixing or stirring a little while and it will become quite liquid again. Should any part of joint be missed in the pouring, a patch can be made which will hold good by making a pouring gate at the place. When pouring joints keep the pouring gate full so long as it will take any. This will insure a perfect joint, and pour as quickly as possible, especially on large pipes. We pour 30-inch joints with one gate, but would recommend using two gates on larger pipe—one on each side, to be poured simultaneously; then one gate on top.

In concluding this article on the merits of Leadite, one item of special interest which must not be overlooked is its comparative cost with lead. Lead at six cents per pound, or \$120 per ton, or \$600 for five tons, will make just as many joints as one ton of Leadite at ten cents per pound, or \$200 per ton, just one-third the cost, and no caulking charges, no leaking joints in after years. Leadite when purchased in car load lots, eight cents per pound, so that adding caulking charges to the price of

lead, a saving of nearly four to one would be realized in favor of Leadite.

GEORGE McKAY.

642 Heed Building, 1215 Filbert Street, Philadelphia, Pennsylvania.

The Chairman: You have listened to a very important paper. From sixty to eighty per cent. of water used in the United States is wasted, and I think, if any one is interested in the subject of water works, it would be of importance for him to get up and discuss it with Mr. McKay.

Mr. McKay: I will give any information you wish. We have about one hundred copies of this paper, which anybody may have, and we would be very glad to have any inquiries and answer any questions. This test of 360 pounds was made some time ago. On the first of this month we put on pressure (since I wrote this paper). It is perfectly true and fast at one thousand pounds pressure. We struck the bonnet on the end of the line with a sledge eight times trying to knock it off. It makes the most wonderful joint I know of. I didn't believe it myself until we tried it.

A member: Does it make a good joint for gas pipe?

Mr. McKay: I should think so. A gas company in New York tried it. Of course we sell it more to water works than gas companies. I could not speak so strongly about gas, I think, because we have not had any opportunities to test it, but I know this company I speak of is using it.

Mr. Tenney: : I would like to ask Mr. McKay if he has any actual figures of the loss of water or any other distributive system where joints are made of Leadite.

Mr. McKay: We have given a guarantee of ten thousand dollars. We have never been able to find one leak in four miles of piping put in in 1894. I have examined it

about four times myself in different places. We have two kinds of books here, and I can distribute both of them. They will give you a considerable number of people using it; one company using about thirty-five tons. There is no caulking charge at all. In Philadelphia caulkers' wages are \$2.50 a day; in New York City the wages paid are \$3.50 a day, adding about fifteen per cent. to the cost of lead joints.

The Chairman: The Secretary will read the appointments for the various committees.

The Secretary: The Committee on Rules is as follows: George O. Tenney, Chas. C. Wilson, N. Wilson Davis, J. E. Brady, Maurice W. Thomas, Adam Jones, Chas. F. McKenzie.

The Committee on Finance: M. F. Cole, A. J. Bowron, W. F. Wilcox, John W. Neil, H. J. Malochee.

The Committee on By-Laws—Wm. B. King, J. S. Slicer, Fair Dodd.

The Committee on Membership—Morgan Llewellyn, P. J. Crimmins, E. C. Butner.

The Committee on Standardization: W. H. Hume, N. B. Hudson, T. J. Halsey.

Mr. O'Beirne: I move that the Committee on Membership be asked to report the first thing in the afternoon, when we convene at two o'clock. The motion was seconded and carried.

Mr. Thomas: I move that the Committee on By-Laws, Rules, and Finance, report at ten o'clock to-morrow morning. The motion was seconded and carried.

On motion of Mr. Slicer, the Convention adjourned until two o'clock.

AFTERNOON SESSION, FIRST DAY.

The meeting was called to order by the Chairman at 2:30 p. m., there being considerable delay on account of the committees not being ready to report.

The report of the Committee on Rules was, upon motion, deferred until the second day.

The Chairman: The next business will be a paper on "Surety Bonds" from Mr. Fair Dodd, of Atlanta.

SURETY BONDS.

Mr. Dodd:

Mr. President and Members of the American Public Association—

Being asked to read a paper before this Association is a privilege I did not expect, a compliment I did not deserve; but in as much as I represent a factor or interest that is friendly to the members of this association, I trust you will bear with me, even though I do not entertain you as you deserve.

I say I represent an interest that is friendly to you, because the Surety Company is friendly to the Contractor, for it qualifies him for undertaking the work under his contract and stimulates his credit. It is friendly to the Architect or Engineer, for it guarantees that his plans, drawings, and specifications will be complied with by the Contractor, and furthermore agrees to hold his client, the owner, harmless and free from loss. It is friendly to the Manufacturer or Material Man, for it offers him an additional guarantee to the security of the Contractor.

Surety Companies are especially friendly to the aims and objects of this Association and stand ready to do anything they can to foster and assist in the promulgation of its purposes. It is clearly the object of this Association to put the letting and the execution of contracts for public improvements on a better, fairer, and more reasonable basis, and to encourage fair competition by eliminating all unreliable parties, and eradicating all pernicious practices. In the accomplishment of this general purpose of this Association, the Surety Company may

be used, and indeed has been used, as one of the most effective instrumentalities.

Surety Bonds are interesting to this body only in so far as they have to do with contracts for public improvements. I therefore, need only refer to three classes of Surety Bonds; namely, Bid or Proposal Bonds, Contract Bonds, and Maintenance Bonds.

By Bid or Proposal Bonds, we mean bonds which guarantee that if the work be awarded to our principal he will sign the contract, assume it, and file satisfactory bond for the faithful performance of the work thereunder. A letter from a General Agent of a Surety Company to the effect that he stands ready to execute a contract bond in the event the work is awarded to a certain party, is not a Bid Bond, and should not be accepted by Engineers and Architects as such. A Bid or Proposal Bond is a bond drawn in the usual form with a fixed penalty expressed as the limit of liability in the event of the default of the principal to comply with the terms of agreement asking for bids. It is our opinion that Bid Bonds should be accepted in lieu of certified checks, and even be preferred, for the primary reason that they are better evidence of the responsibility of the bidder. Any bidder who will deposit as collateral with a bank the amount in cash for which he desires certified check can always procure the check. The bank, of course, takes no risk in issuing it, although it may know nothing whatever about the responsibility of the bidder. The amount deposited may represent the entire financial strength and credit of the bidder. The bank asks no questions. It is sufficient for it to know that the amount deposited will hold it harmless. But if a bidder applies to a Surety Company for a Bid or Proposal Bond, he must satisfy the Company that his moral responsibility is such as to warrant the issuance of the bond; that he is sufficiently experienced in the particular line of work which he proposes to undertake to

make an intelligent bid; that his financial standing is such that, if the work is awarded to him, he will be able to prosecute it to a successful completion. I, therefore, say that a Bid Bond is a more satisfactory guarantee of the responsibility of the bidder. Some Architects and Engineers contend that certified checks are preferable, alleging that they can realize more fully and more promptly on checks than on bonds; but this is a mistake. In law they can only collect the amount of actual damage in any event; and the Surety Companies are just as strong financial institutions as banks, and a great deal stronger than most banks issuing certified checks on these occasions. Moreover, so-called certified checks furnish opportunity for shrewd practices by unscrupulous bidders. The certificate, in the first place, may not have been signed by any officer of the bank. The form of endorsement may frequently prevent collection. The certificate never bears the corporate seal of the bank on which the check is issued by which its genuineness may be determined. Indeed, so great is the opportunity for fraud, that the check may have issued on a bank which is no longer in existence.

Now, as to Contract Bonds: Contract Bonds, as we all know, are to guarantee the faithful performance of the contract in accordance with plans and specifications prepared for the work. These Contract Bonds are made a part of the contracts, and in this way the Surety Company is indirectly, if not directly, a party to the contract. Therefore, in executing Contract Bonds, the most important matters which we have to consider are the amount the contractor is to receive for his work, the time he is allowed in which to do the work, and the general terms of the contract. We want to believe that he is getting a fair and adequate price for the work he proposes to undertake, that he has a reasonable time in which to do the work, and that he has not signed a unilateral contract

under which he is denied, in the event of damage or dispute, the right of appeal to a fair board or equitable court for relief. The great majority of contracts offered us for our guarantee are not written with a view to fairness to both sides, but are written by the owners for the owners. Many of these contracts contain stipulations and impose obligations on the contractor which, if executed to the letter, would entail great financial loss to the contractor, and in many cases would work his complete financial ruin. I believe you will agree with me that such contracts should never be written, and if written, should not be signed. The fact that so many contracts are unilateral is no more due to the cupidity of the Engineers or Architects than to the stupidity of the Contractors. Contractors have been so eager for work that they have been accustomed to signing any contract offered them which contained a price for work, irrespective of the limitations and restrictions with which the contract is burdened. Knowing this, Engineers and Architects have decided that they owe it to their clients to incorporate in their contracts these stipulations and obligations, relying on their own sense of fairness and equity to see that justice is done to both parties. When we reprimand the contractor for having signed a contract containing certain unreasonable paragraphs, he answers us by saying: "They won't stand in Court." The contractor should not have to resort to a court to procure rights which should be expressed and given in the contract; and Engineers and Architects should not stipulate in their contracts conditions which are inequitable and not enforceable in law. For instance, we do not believe that it is fair to impose a heavy per diem forfeit on the contractor. It works an injustice to both parties to the contract. If, by reason of unavoidable delays in the prosecution of the work, this clause comes up for consideration, the contractor feels that it is a kind of

blackmail, and that he is being held up and robbed. On the other hand, under this clause of the contract, what advantages inure to the owner? He gets a job finished in too great hurry; he gets defective material, deficient workmanship performed by unskilled labor and a few hundred dollars extracated from the contractor as forfeiture. The amount he has been able to collect from the contractor will not repair the defects in his plant, and after a few months he discovers so many additional defects, that he is sometimes provoked to say that the Engineer or Architect was more careful of the contractor's interest than of his. So the Engineer, or the Architect, as the case may be, gets the "hot end of the stick" from both parties. It is my opinion that if the Engineers and Architects on one hand and the Contractors and Manufacturers on the other hand would give due consideration to those matters, they would decide that the only contract that is fair is the contract that is fair to both parties.

Another condition sometimes expressed in a contract which appeals to us as being an incongruity, is the naming of the Engineer or Architect as the one party to decide all questions as to damage or disputes which arise between the contractor on the one hand and the owner on the other hand. It is our opinion that the Engineer or Architect should decide all questions about which there is a dispute, but in every case his decision should be appealable to a board of arbitration. I am sure that Engineers and Architects do not covet the privilege of passing upon the rights of the contractor in matters of dispute between him and the Engineer's client, the owner; and they have in this respect allowed owners to impose upon them a burden which I believe was never contemplated in their profession as a proper duty devolving upon them. They should not countenance any effort on the part of the owner to have them

act as a court of last resort, for it entails upon them the necessity of acting as agent for both parties at the same time—a thing inconsistent with their own contract of employment, and in law a nullity. In what respect is the City Engineer's relations to the City different from those of the City Attorney? No City Attorney would be allowed, after defending a claim or suit against the City, to walk upon the bench, constitute himself a Court of last resort, and pass on the rights of the claimant. In practice the system usually works satisfactorily, but in principle it is wrong. Fortunately for the contractors the Engineers or Architects, owing to their high sense of honor and keen appreciation of the responsibility of their positions, have, at great expense of time and energy, endeavored to maintain an equitable status between both parties to the contract, and thus a parity of rights usually obtains.

Many contracts submitted to us for our approval and guarantee are rather too liberal to the contractor in one particular. I refer to the matter of payments. Ten per cent of the contract price is not a sufficient amount to retain until the completion of the work, and I make this suggestion for the following reasons: Most contractors calculate on a profit of approximately ten per cent.; and specifications stating that ninety per cent. of work performed and materials furnished will be paid as the work progresses, is an alluring proposition to a certain class of contractors, who are led to believe that they can carry on the work without capital. If they are awarded the contract, and in good faith undertake to perform the work thereunder, and are fortunate enough to do the work within their estimated cost, well and good; but if they find the actual cost exceeding their estimated cost, the result is a default, the surety is delayed in the completion of the work, the Engineer is blamed and sometimes abused, and the owner is dissatisfied and

damaged. The Contractor should be required to invest enough money in each contract to guarantee good faith on his part. The chief advantage of a larger percentage reserve, therefore, is that it will tend to preclude the irresponsible bidder who is without means, and who, therefore, has nothing to lose from competing with the reliable contractors who have their capital and reputation at stake. I would, therefore, suggest that at least 15 per cent. or 20 per cent. of the contract price should be reserved until the satisfactory completion of the contract.

It is our opinion that a uniform contract is desirable; and I would like to suggest, if you will allow me to do so, that if the Engineers of this Association will recommend a form of contract and the Contractors adopt it, it will prove advantageous to all parties concerned. It will preclude many a dispute and wrangle between the successful bidder and the Engineer, after the contract has been awarded and before the same has been signed. The Contractors will know in the outset, and before they submit their proposals, exactly what kind of contract to expect, and the Engineers will know what kind of contract will be signed. Anything that tends to lessen and allay friction and that looks to a better understanding between Engineers and Architects, on the one hand, and the Contractors and Material Men, on the other, will result in the ultimate good of all parties concerned.

Lastly, and I shall merely refer to them, are Maintenance Bonds. These are a "bugaboo" to us all. They are to guarantee the durability of the materials and the quality of the workmanship. The principal reason that these bonds are looked upon with such disfavor is that claims are so often made when the defects appearing are not the results of the use of defective materials or of deficient workmanship, but are due to external causes over which the contractor has no control and to causes

which were unforeseen and which were never contemplated in the minds of either party to the contract as contingencies to be provided against. It appeals to us that on some classes of work a maintenance guarantee of one, two or even three years may be exacted without doing violence to our ideas of what is reasonable; but long time maintenance bonds are, and ought to be, on the prohibited list with all Surety Companies. If the influence of this Association results, as I believe it will, in creating healthy conditions and fair competition in matters of contracts for public improvements, the maintenance features will take care of themselves.

We are entering upon a period of greatest development, commercially and industrially, ever known in the history of our country, and the question as to whether we build safely, wisely and in keeping with the progress of this age depends upon you. Private businesses, corporations and municipalities are enjoying unprecedented growth and prosperity and are more liberal than ever before in the expenditure of money for modern and extensive improvements. Let us pitch our business or profession on the highest plane possible, condemn all bad practices, discourage and exterminate the fakir, the time server, the unscrupulous and build plants, systems and improvements that will stand for years and years as monuments to the skill, the wisdom and the honesty of the engineers and builders of this generation.

The Chairman: We have listened to a very able article by Mr. Dodd. I think it would be well to have a discussion upon this subject and put it upon record.

Mr. O'Beirne: We have listened to one of the best papers on this subject I have ever had the pleasure of hearing. I think there is a whole lot of meat in that paper, and I think we should all consider it very seriously. It is in line with the recommendation of the Executive Committee that a larger percentage be held back, and I believe with Mr. Dodd, that the ten per cent.

is not sufficient. I am very much inclined to favor 15 per cent., if not 20 per cent.

Mr. Crimmins: I also have enjoyed the reading of this paper very much. One idea that struck me forcibly was the question of uniform contracts. For my own satisfaction, I would like to know if Mr. Dodd has any definite idea of what that contract should be.

Mr. Dodd: What I had in view, and what occurred to me when I mentioned that, was the fact that the American Institute of Architects and the National Builders' Association have a uniform contract, that is adopted or recommended by the Institute of Architects and adopted by the contractors, and is being used very frequently in this part of the country by architects for the erection of superstructures, buildings, etc. It works very satisfactorily, and it seems to me a contract—I suppose many have seen it—that is pretty fair to all parties concerned, and it occurred to me that there could be no reason why the engineers, for instance, on all classes of municipal work, like water works, electric lights, etc., could not use this contract. The main features are similar, and spaces are left for the filling in of the particular class of work to be undertaken.

Mr. Crimmins: The reason for asking the question is, that from a material man's standpoint, I know some companies have their own form of contract and know when they get a man's signature to the bottom they have him bound up so there is no way on the top side of the earth to get away, and some of the companies are members of the Association, and might not take kindly to the uniform contract that might be adopted.

The Chairman: That is a matter that could probably be taken up by the engineers in this convention.

Mr. Wilson: I use the uniform contract, adopted by the National Builders, for architectural work and engineering, and it is a fair contract, and will stand any

test before courts for either side. I want to move, at the proper time, that a committee be appointed on this subject to confer with the engineers and contractors, as well as the manufacturers also, and prepare and present to this Association a contract for its adoption.

Mr. King: I was very much interested in the proceedings this morning, and in the paper this afternoon, in regard to increasing the percentage. It is so much in accord with views I have heard expressed by officers in the United States Engineering Works, that it seems to me it opens the way for correcting abuses in government work to a large degree. I have discussed some time ago, with officers in the reclamation work in the far West, as well as those engaged in the harbor work, all over the country, their difficulties. They say that the chief trouble all over the United States in having a fairer contract for the contractors, is due to the fact that in the United States law, contracts have to be awarded to the lowest bidder, without discrimination, and that provision brings in the bidding, irresponsible people. Their aim is to exclude irresponsible bidders and get into government contracts only bidders who are responsible men. I can hardly think of any more simple means, or efficacious means, of insuring that, than to have the percentage check increased from ten to fifteen per cent. I believe that would keep out these men whom the Pittsburg papers described last Saturday as "pikers." It is a class of men who are not wanted, and whose work is detrimental to the profession in general.

The Chairman: I presume this matter of the Committee on Rules will be taken up tomorrow morning.

Mr. Tenney: I have made arrangements in regard to that. We shall have the meeting tonight at 8:30 in my room. We would be glad to have any one come before the meeting and express his ideas.

The Chairman: The next number on the programme is a paper on the Standardization of Hydrant Nozzles by Mr. W. H. Hume, of Chattanooga.

Mr. Crimmins: Mr. Hume will be here tomorrow and I would ask that his paper be postponed until his arrival.

The Chairman: If there is no objection the reading of Mr. Hume's paper will be postponed until tomorrow. We will now have the report of the Finance Committee.

Mr. Bowron: We would like to have further time, as we expect the Treasurer tonight.

The Chairman: If there is no objection further time will be granted the Finance Committee. The chair will appoint Mr. Crimmins to read a paper prepared by Mr. Frank Gilbreth, of New York, on the Cost-Plus-a-Fixed Sum-Contract.

Mr. Crimmins:

Mr. President and Gentlemen:

In accordance with the request of your secretary, I have written this paper describing what is known as the "Cost-plus-a-fixed-sum" method of contracting.

I shall first describe two other and probably better known forms of contract, namely, the "Lump Sum" contract and the "Percentage" contract, and then I shall explain in detail the "Cost-plus-a-fixed-sum" contract and then the "Cost-plus-a-fixed-sum-contract-with-a-guaranteed-maximum" which, as a matter of fact, is nothing more nor less than a lump sum contract masquerading under another name.

I shall then state the reasons for selecting for our own business the "Cost-plus-a-fixed-sum" contract exclusively and our reasons for believing that it is the only form of contract that is just and equitable for both the owner and the contractor, and that it is the only form of

contract whereby the interests of the owner and the Contractor are made identical. I shall endeavor to prove that the best results cannot be obtained under the "Cost-plus-a-Fixed-Sum" contract if the Contractor takes contracts under all bases, and that "Cost-plus-a-Fixed-Sum" is not what its name implies unless the "Cost" is the cost, the whole cost, and nothing but the cost—and unless the whole of the "Fixed Sum" represents the net profit to the Contractor.

Now let us return to the three forms of contracts and consider their merits and disadvantages from the following standpoints:

1. Lowest total cost to the Owner.
2. Greatest Speed of Construction.
3. Best Workmanship.
4. Future business between Owner and Contractor, based on past experiences.

Now under the lump sum contract, the Contractor agrees to furnish all labor and material necessary to complete a certain definite piece of work (plans, specifications and details of which must be complete) for a definite lump sum (or at unit prices which, which means several lump sums) and while at first glance, that seems to be a very reasonable, harmless and peaceful contract, as a matter of fact, it is anything but that. (We are now discussing forms of contracts and not the character of owners nor honesty of Contractors.) The "lump sum" contract is a license to support lawyers and a privilege to pay court costs and if there were no more lump-sum contracts, one-half of the lawyers would have to abandon their calling for some other work.

You all know too well what happens under the lump sum contract, when the owner changes his mind and the architect changes his plans. That is what is called "Extra Work." That is what the Contractor has been praying for; and on and after the first piece of extra work

is ordered by the owner, that "Lump Sum" contract should be called by its real name, which is "The Lump Sum-plus-Extra-Work-plus-Time — Extension-plus Lawyers' bills" contract. In other words, the Owner and the Contractor are on opposite sides of the fence. Their interests are opposed from the start to finish. Every cent that the Contractor can save goes into his own pocket and every cent the Owner pays does not necessarily represent value received, because the Owner may be paying not only for non-competitive prices for extra work, but also paying a large item for interest on his investment and loss of rent because the work is not progressing any faster than is the rate of speed of greatest economy to the Contractor. Again, a little saving in the time taken for the riveting of the steel work, a little saving in the quantity of the cement used, or in the labor of mixing of the concrete, while quite up to the requirements of the written specifications, is a saving to the Contractor, not for the Owner, and these little savings, if undesirable or even if harmless, are savings that the Contractor gets and for which the Owner pays. Therefore the Owner does not get his work done at the lowest cost, for he has agreed to pay the Contractor a certain lump sum (and there's no mistake about that) for performing a certain piece of work in such a manner that the Owner and architect cannot refuse to accept it. Without at this time discussing the question of the loop-holes in the lump-sum contract—and the number of these loop-holes is legion—let us consider what the owner pays for this form of contract. The lump-sum contractor won't work without a profit, furthermore, he is taking the risk of unfavorable circumstances, and he adds a good stiff percentage so that he will be sure, no matter what happens, of making his profit. Generally the unfavorable circumstance does not develop and the contractor naturally pockets the difference saved. That means two profits. He also saves the money which may accrue through the



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fortunate circumstances which are just exactly as apt to happen as the unfortunate ones. That would mean three profits.

Under the lump sum contract the Owner cannot hold the Contractor to the speed requirements nor the date of completion of the contract if he has ordered extra work. There are certain well known printed forms of contracts that have had an extensive sale, that state that there shall be a time extension equal to the amount of delay caused by any extra work and that particular clause has been a source of joy for many a hard-pressed contractor.

In summing up there can be no doubt that there is very little to be said in favor of the "Lump Sum-plus-extra-work-plus-lawyers' bills-and-costs" form of contract that would of itself make future business between the parties, based on their past mutual experiences, because the interests of the parties are opposed from the beginning to the end.

Now we come to the second form of contract, which is known as the "Percentage" contract.

Under this form of contract the contractor agrees to furnish all labor and materials necessary to complete the entire undertaking for cost plus an agreed upon percentage of said cost. This form of contract is very nearly perfect, but not quite. The owner can regulate the speed and the time of completion—he can decide whether or not he will give way to strikers or put non-union men to work. The owner's and the contractor's interests are identical so far as speed of construction and the desire to obtain good work is concerned and the chances of continued pleasant relations would be good if it were not for the fact that the owner is apt to suspect that the contractor may be increasing the cost of the work for the sake of getting more profit, for the contractor's profit is in this case directly proportional to

the cost of undertaking; to obviate this disadvantage, the third form of contract, namely the "Cost-plus-a-fixed-sum" contract was devised.

This form of contract has all the advantages of the "Cost-plus-percentage" contract and without its disadvantage, because there is no incentive to the contractor to increase the cost because it would not increase his profit. The only disadvantage that anyone can discover to the "Cost-plus-a-fixed-sum" contract is that the owner cannot possibly get his undertaking completed for less than cost, as he might possibly do under the "Lump Sum" contract, if the contractor made an error in his lump sum estimate and had no opportunity to make up on "extra work." The advantages of this form of contract to the owner and to the contractor are numerous and I quote here from the literature that we have sent broadcast throughout the country during the last three years of our campaign to induce contractors, architects, engineers and owners to do business on the "Cost-plus-a-fixed-sum" basis. The Owner's and the Contractor's interests are made identical. The Owner knows in advance exactly how much profit the Contractor will make. The Owner's interests require that the work be executed in the shortest possible time at the lowest possible cost and with the best of workmanship. The Owner's interests are absolutely identical with those of the Contractor in every one of these particulars, because his profit or salary being assured, the Contractor's only interest is to perform the work in such a manner as to retain the Owner's patronage. The Owner is relieved of the menace of "extra work"—all the work being done at cost. The Contractor's "fixed-sum" is in no way affected by the changes in the plans. The Owner has the benefit of all cash discount for materials. The Owner knows what all materials will cost before they are purchased. The Owner can purchase the materials if he so

desires. The owner can have his excavations and foundations completed while plans for superstructure are being drawn. The owner, engineer or architect can make changes or alterations at any time without delaying the work. The owner can have any number of skilled and carefully trained mechanics massed on his contract at a moment's notice. The Owner knows what the Contractor's profit is to be from the very outset of the work. It is the same amount irrespective of the cost of the work, and there is, therefore, no incentive for the Contractor to produce anything but substantial and economical work. The Owner has his building completed as rapidly as is consistent with good workmanship. The owner or his authorized representative has access at all times to all matters pertaining to the work. The benefits of the "Cost-plus-a-fixed-sum" contract, taken from the Contractor's viewpoint, are: The Contractor has the opportunity to win upon his merit an enviable position in the business world's confidence. The Contractor's profit on a piece of work is assured. The Contractor will be free from relations with owners who have not the courage to take legitimate risks attendant upon their own enterprises, and who wish to saddle them upon a Contractor upon a lump sum basis and leave him to gamble his way out as best he can. The Contractor has, on the other hand, the satisfaction of dealing with an owner who has no reason to suspect him of over reaching, who is not in constant dread of extortionate charges for "extra work," and who, in a word, has a contract offering complete insight to the financial affairs of the job.

While we never have claimed to have been the first concern to do contracting on the basis of "cost-plus-a-fixed-sum," we think that we were the first to start the campaign on "Cost-plus-a-fixed-sum and nothing but Cost-plus-a-fixed-sum" and our reasons for it were caused by our experiences during those years that we took

some "lump-sum" contract at the same time that we had "Cost-plus" contracts in operation.

We found that there was a "tendency" to put our best superintendents and apprentices who could do a man's work for an apprentice's pay and our best plant on the lump-sum contracts and the second-class foremen, "old pensioners" and the rest of the plant on the "Cost-plus" contracts. To do away with this "tendency" we made it an iron-bound rule to take no more "Lump-Sum" contracts under any conditions whatever, regardless of how much profit there might be in them, and we will not award a sub-contract for labor or material on the "Cost-plus" basis if the sub-contractor has any lump-sum contracts being constructed simultaneously.

As a possible result of our "Cost-plus-a-fixed-sum" campaign, it is interesting to note its apparent effect on the advertising literature in the engineering journals of the country. One large firm states: "We solicit contracts on the 'lump sum,' 'day work,' 'percentage' and 'cost-plus-a-fixed-sum' basis. Another prints, "We will also take contracts on the cost-plus-a-fixed-sum basis." On which jobs then will their best men be? Another states, "We take contracts on basis of actual cost, plus-fixed sum of profit to us and for this profit, we furnish superintendents and complete plant." Now that sounds good to any inexperienced owner but what is the "tendency?" Neither "the actual cash cost" nor the "fixed sum of profit to us" are what they are called if the contractor pays for the superintendence and also for the leasing of or for the deterioration of the plant. This proposition is like the theory of life insurance—in any one company—all that you get for what you pay for is the same, mathematically, regardless of the kind of policy you take out. So why not reduce the "fixed sum" and have the owner pay for all superintendence and all plant which may be leased, or bought new and sold at the completion of the

work, and he can then know just what he is actually getting and know what he is really paying for it--and furthermore what is the "tendency" under this form of contract? Is it not perfectly evident that the less the contractor pays out of his fixed sum for superintendence and plant, the more he makes? The worst attempts to assassinate the "cost-plus-a-fixed-sum" principle are the advertisements which state, "We do work on the basis of 'cost-plus-a-fixed-sum-and-a-guaranteed-maximum:.'" also "we take contracts on the basis of 'guaranteed maximum cost plus fixed profit to us.'"

Now at first glance those do look as if they had all the advantages of the "cost-plus-a-fixed-sum" contract and "lump sum" contract combined, but they are nothing of the sort--on the other hand, they are absolutely nothing more nor less than "lump sum" contracts (if they have a guaranteed maximum cost) and the "fixed sum" is "fixed" only in case the maximum is not reached. Under a "guaranteed maximum "cost-plus-a-fixed-sum" contract, the interests of the parties are not identical. Neither party knows how much the contractor will make. The contractor cannot afford to rush the work beyond that speed which is the most economical for him. Every change in the plans brings up that question of "extra work" which of course must raise the amount of the maximum guaranteed and then if the owner and the contractor are unable to agree, it is for the lawyers to decide.

The entire theory of the "cost-plus-a-fixed-sum" contract is that the owner shall have his own way in any and all matters pertaining to his work. He shall have the right to decide what materials shall be bought and whether or not they shall be bought of the lowest bidder. He shall have the right to order the contractor to put on as many or as few men as the owner wants regardless of whether or not there are strikes. His decision shall be final re-

garding the paying of bonuses for the quick delivery of material and his decision shall be final on all matters pertaining to the conduct of the job.

It is obvious that under these conditions it is ridiculous to expect any contractor to guarantee any maximum cost. If the "cost-plus-a-fixed-sum" contract is to be used, let the owner pay for all of the actual cash cost and have it understood how much actual profit the contractor is to have and that the entire "fixed sum" is to be net profit to the contractor, but if it is decided that the form of contract to be used is one wherein the interests of the owner and the contractor are not identical, the advice of any experienced lawyer to either side, would be to start in on the day the contract is signed and collect your evidence for it may be very valuable when the case comes to trial.

The "cost-plus-a-fixed-sum" contract has proven time and time again that the same amount of effort, thought, and money required to win lawsuits can be best spent to reduce the costs and the time of construction and in securing better workmanship, and it is therefore hoped that all owners, architects, engineers and contractors will do all in their power to help along "that square deal for everybody," the "Cost-plus-a-fixed-sum" contract.

Respectfully submitted,
FRANK B. GILBRETH.

Mr. O'Beirne: I think the paper we have just heard has something in it for the serious consideration of this Association. I believe if a municipal contract was let on the basis of cost, plus a fixed sum contract, every bidder would simply bid the amount it was worth—what he would do the work for. It would not be simply a question of the lowest bidder by any means. I believe it would be a question of who could do the work for the

least money, regardless of the amount they bid as profit. I believe it is the fairest and best form of contract, and I would like, some day, to see every contract made on that basis.

Mr. Tenney: I would like to hear what the city councils would say as to how you are to do the work.

Mr. O'Beirne: As I understand it, the owner can tell you, if you are going too fast or too slow. This, I believe to be the whole kernel of the question. The owner has a right to say how fast or how slow the work shall proceed.

The Chairman: How does this affect the competition of the manufacturer?

Mr. O'Beirne: I don't think there is any manufacturer who would refuse an order to make machinery for a certain amount of money, plus the cost. Of course, that means everything connected with it.

Mr. Crimmins: It seems to me, the way I understood that paper, the manufacturer would not enter into it. It seems to me it would give the manufacturer a square deal. It is up to the town to buy my material—taking it for granted we are talking about municipal contracts. The town will buy the material and pay for it; the man who makes the contract hasn't anything to do with it at all.

Mr. Tenney: I do not see what they will want a contractor for, the engineer will be the man who has to look out for it. He would pick out a foreman. That is the first thing they do in some little towns, and they would not have a contractor on the job. They could tell the contractor what to do, and they could tell the foreman what to do, and I don't think that would do at all.

Mr. O'Beirne: If you assume that one contractor can do the work as well as another, you are correct, but the fact is, there are few contractors, that execute contracts,

of like character and quantity for the same cost. I have noticed a difference of from fifteen to fifty per cent. in the item of labor alone under different foremen on same work. Contractors have their faults like other men and if I were to pick out one under a Cost-Plus-a-Fixed-Sum contract, I would be careful to get a man of skill and experience in that particular line, in the expectation of getting a better and more economical execution of the work, even though I paid him a larger fixed sum for his services, than was asked by others. This plan gives a contractor a chance to build up a profitable business. The plan of the Cost-Plus-a-Fixed-Sum contract is meeting with great favor in all parts of the country. Recently I learned of a few contracts let on that basis for residences in Hattiesburg, Miss. The contractors were from Peoria, Ill. The owners had confidence in the judgment and skill of the contractors and preferred to give them the work for a fixed sum and cost, rather than let the work in the usual way, and take the chance of having as a low bidder some contractor that they would not want to do the work.

Mr. Tenney: It seems to me the worst thing in getting a contract of this kind is that most corporations want to know before the work gets started "What is the plant going to cost us?" They have funds to provide and ordinarily it is hard work to get enough money to pay off the contractor. Before they start the work they want to know whether they are going to spend \$125,000 or \$150,000 for this contract. The city makes an estimate of \$200,000 for sewers; they do not know whether it is going to cost \$200,000 or more. They issue \$200,000 of sewer bonds. They do not know what the cost will be, but they will want to know before they will execute a contract. For that reason it seems to me it would be in the power of the city council to change about any time a contract was wanted on the Cost-Plus-

a-Fixed-Sum basis. Some private individuals who have plenty of money would be perfectly willing to let a contract of that character, but if a man is going to build a factory he will want to know what it will cost before he starts.

Mr. Jones: That is part of the remark I was going to make. He left out one point, however, I think. I do not think this kind of contract would be applicable to municipal work. The question of politics comes in much more than is often considered and the council, if they are all representative and fair men, want to stand by the people. I have that idea in working for municipal corporations because we want to be very precise in the position, each contractor occupies and each councilman wants to stand by the public and have everything very definite that is connected with the whole contract, and particularly, as remarked, the cost of it. Suppose the contract is let for \$100,000 or \$150,000; there would be all sorts of unkind remarks about the council that went into such a deal and furthermore, the law of the States control the actions of municipal corporations to a very large extent. I have run across it in quite a number of the United States. I am not a lawyer but I know politics control it very largely. Before issuing bonds, they have got to get a special act through the legislature. I had one instance in a small town where they were going to construct waterworks for \$40,000 and had no plans and specifications and wanted to know if that would be enough and I told them "No." They made some additions which increased the cost \$10,000. I told them they would have to do something definite which they did. They wanted to know where the water was coming from, about the distribution of hydrants, size of the mains, etc. The political situation has so much to do with it, so that I am afraid my friend won't see his plan of cost plus a fixed sum working for some time.

Mr. O'Beirne: I have seen occasions during the past year where 'twas thought the bid was too high and city did the work on force account. I know it is the practice of some cities to do all work on force account, because they get actual cost of the work. I do not believe there is any city or industrial corporation but what regards as immaterial the fact that cost exceeds original estimate, provided it is the actual cost that exceeds. Most people and most cities object to contractors making too much profit, but do not object to paying additional money if they get an actual value in return.

It is far worse when work is done under what is known as the unit contract price, where each item of the contract is paid a fixed sum per foot or yard as the case may be, if the cost of the completed work exceeds original estimates, as is usually the case, the city or owner is generally dissatisfied; we all know that.

We have engineers who can, before a contract is let, give a close approximate estimate of the cost, and if the city orders additional work they do it with their eyes open and know they are going to suffer for it. People don't want to pay more than a job is worth, and the merit of this fixed sum contract is that they get exactly what they pay for. It is something that this Association can look at with their eyes open. We are here to benefit ourselves and the communities at large. I believe we ought to look at it fairly and squarely and if we can benefit a community by giving exactly what they are entitled to, we should do it. I don't believe there is a city in the South that has any laws against letting a contract in that way.

Mr. Tenney: If I understand that the city officials or the owner have a right to dictate to the contractor how fast or how slow he shall go and how to prepare his work, it would seem to me very objectionable. Most of the city councils have their friends appointed as fore-

men, and so on and in the grading of our streets they would want dirt to be taken off the streets and carried to their particular lots and filled in, and it seems to me that would be very objectionable; but if you add to the contract a clause that all engineers have in their contracts, that we now sign, it seems to me I would feel very proud; and that is, to put in the contract that the decision of the contractor shall be final and binding on all parties. (Applause.)

The Chairman: It does not matter what a thing costs if the purchaser gets the benefit and I would like to hear from Mr. Wilson, what he was to say about it.

Mr. Wilson: I think there is no reason why engineers should take work at such close margins that towns would suffer serious embarrassment. The weakest point in the paper is the one Mr. O'Beirne brought out and that is that some men can do work even fifty per cent. cheaper than others. I do not see how an engineer or community can select the men who can do the work the cheapest. Certainly a community cannot because they have not had the experience. Contracts for different years are taken by different councils and they have no regard for doing work cheaply. They do not know, but one who has built water works for \$150,000 will hear it might have been built by somebody else for \$125,000. We are running a risk in adopting that system and employing an inefficient contractor, which we do not run in employing an efficient contractor. That I think is the weakest point in the system.

Mr. O'Beirne: From a contractor's view I should think that what Mr. Wilson calls the weakest point is the strongest. If a city were to let a contract on the cost-plus-a-fixed-sum-basis, the important item would be to select the contractor whose reputation for skill and economy in handling men and materials was greatest, the amount of the fixed sum bid by each contractor

would be a secondary matter. The value, as I see it, of the cost-plus-a-fixed-sum-contract, lies in the fact that there would be an incentive to build up a reputation that in time would be a valuable asset.

Under present conditions the most reputable firms have no precedence over the most irresponsible.

Mr. Tenney: I would like to hear from contractors who make a point of doing work for city councils.

Mr. Brady: I would like to ask if Mr. O'Beirne has ever given a sub-contractor work on that basis.

Mr. O'Beirne: No, but there are many people I would be pleased to give work on the cost-plus-a-fixed-sum-contract.

The Chairman: I think this paper should be referred to some committee.

Mr. O'Beirne: The Committee on Rules is a busy committee. I think it should be referred to the Committee on Contracts and left to them. I would suggest further that you appoint a special committee to take up the question we were speaking of a while ago, of making uniform contracts and leave it entirely to that committee.

Mr. Wilson: I move that a committee of five consisting of engineers and contractors, whoever the chair may prefer, prepare two uniform contracts, one on the lump sum cost and one on the cost-plus-a-fixed-sum basis.

The motion was seconded and carried.

The Chairman: I will appoint on that committee Mr. Tenney, Mr. O'Beirne, as contractors; Mr. Wilson, Mr. W. F. Wilcox, as engineers, and Mr. Slicer.

The Chairman: The next business is a paper on The Reduction of Fire Insurance Premiums, by W. F. Wilcox; of Meridian, Miss., which I will ask the Secretary to read.

THE REDUCTION OF FIRE INSURANCE PREMIUMS.

The Secretary:

Mr. Chairman and Gentlemen:

Insurance has been one of the greatest factors, in the upbuilding of this great country. It is therefore eminently proper that The American Public Works Association, composed as it is of the representatives of the men who have made such a nation possible, should give this question the benefit of their closest attention, and best thought.

Insurance is an absolute necessity to a nation like America; and is a great aid to the development of any country.

It is as much a basis of credit, as your balance at the bank, or your personal integrity. What would become of us, if it were not for these great and, as a whole, honest corporations who agree to indemnify us against the loss by fire of our homes, our wares, and our crops, as they lie piled up ready for market? If the insurance companies were wiped out of existence, as some of the strongest were by the great San Francisco disaster, there would be such a panic as the world has never known.

The rich would be paupers and the poor would starve.

With the possibility of such a disaster before us, can we not spare the time to study this great question?

Many people, of more than ordinary intelligence, seem to regard the insurance companies as their natural enemies; this is wrong.

The insurance business is so paternal in its care of the risks which you assume in the daily conduct of your business, that it stands for as much when it guarantees the enjoyment of property safe from loss by fire as does the State or municipal government, which guarantees you may be safe in the enjoyment of your property

rights and that the strong may not rob the weak. Carried to a further comparison, you will find that every protection guaranteed you by law is insurable.

The earliest insurance of which we have any record, was the Commune System, which had its origin in Assyria and the East.

Under the "Commune System" the adjusters or judges, had authority to examine into the cause of a fire and, if it was accidental, there was an assessment put upon the district to pay the loser.

This must have been the only form of insurance for more than two thousand years, for we find it in existence in Flanders in 1240 A. D.

At that early date, the communities had found it necessary to protect themselves from incendiaries.

The laws then provided that, in case of incendiarism, the incendiary forfeited his property, and if his property was insufficient, he was banished. In 1907, we will celebrate with a great centennial the founding of Jamestown, Va. (1607.) Would it not be fitting to also celebrate the tri-centennial of the present great insurance system? For it was in 1609 that a committee proposed to Count Von Oldenburg that the state should undertake to provide an indemnity against loss by fire at a premium of one percentum. The Count declined the proposition, and suggested that the venture be undertaken by private individuals.

In England various schemes of insurance were tried from 1635 to 1667, and it is asserted that some of their failures were due to the instability of the government.

In 1666 came the great fire of London, which was relatively the largest fire the world has ever known. Ten years passed before London replaced the burned buildings, but Chicago, in 1870, aided by the present great system of insurance, recuperated in as many months, and

at San Francisco the flood of money poured in by the insurance companies necessitated placing millions on deposit in New York.

In the year 1667 Nicholas Barbon, of London, first undertook to replace for a fixed charge or premium property destroyed by fire.

This was modern insurance begun.

Profiting by experience, the Sun Fire Association was formed in 1710, and is still in existence today, being probably the oldest insurance company in the world. We have little information as to what was being contemporaneously done in Europe and Asia, but we do know that the other nations were not idle. In Germany and Switzerland state insurance was started and today each home in these countries is insured by the state when completed, but the bulk of insurance, which includes all other classes, is carried by individuals and corporations.

In France we find that the great Napoleon contributed much time to the question of insurance, and today there is much that we may learn, on this question, from his wonderful creation, the "Code Napoleon."

Frenchmen must and do carry insurance, not only to indemnify themselves against loss, but also to indemnify their neighbors against a loss negligently inflicted.

In the eighteenth century America began to take her place as one of the great nations, and joined hands with the old world in the solution of this great question.

From the middle of the eighteenth century we see that all of the nations of the world are busy organizing fixed rate companies, both stock and mutual, mutual indemnifiers, and voluntary fire and salvage companies.

More than two thousand of these were organized and less than ten per cent. of them exist today.

Standing as we do today upon the pinnacle of achievement, we see the survival of the fittest, and each with its

proper sphere and usefulness. Looking backward, we see that insurance has ever been one of the world's great questions. The insurance company of today, with its allied interest and appliances for the indemnification and prevention of loss, represent as a whole the best thought of centuries, and the life work of men who would have achieved greatness in any sphere of life.

The great State of New York has recently spent much time and money upon the study of how to improve the conditions in one of the branches of insurance.

I would advocate a similar study of all branches of insurance, for they are equally important.

Every State in the Union spends as much for insurance as it does for government, and each legislature should have an insurance committee, which should have equal standing with its ways and means committee, and study to improve conditions governing insurance rates.

A more careful study would tend to cure many evils that exist, and procure the best insurance at the lowest possible cost.

A great step which nearly all of the States have taken, is the creation of an insurance department, and I am glad to be able to state that the men occupying the positions of Insurance Commissioners in the various States are honest men of more than ordinary ability.

What is politically and commonly known as "The Common People" should give more time and study to the question of insurance.

Such a study would create a better understanding of the question, and lead to the inevitable conclusion that insurance is a great economic question and not a political one.

As an evidence of what study will do, I wish to cite an incident in the last Louisiana Legislature.

A member came to the capitol with blood in his eye, and demanded the enactment of a law that would

protect the "Common People" from the Louisiana Fire Prevention Bureau.

This act was about to pass, when the business interests of the State came and asked a hearing. The member and his committee gave a careful consideration to the evidence and made visits to several points in the State. Upon returning to Baton Rouge (I am informed) the author asked leave to withdraw the bill, stating that examination had shown that the Bureau was doing a great work for the "Common People."

This and other similar bureaus are doing much for common good in that the insurance companies are practically demonstrating to the people that better construction of buildings and reasonable and intelligent efforts to prevent fires will save enough in the reductions in insurance premiums, to pay handsome returns on the investment of both time and money and still show a saving to the insured.

I believe that every insurance commissioner should have an engineering assistant to act with these fire prevention bureaus, and that the commissioners should have authority to enforce regulations for fire prevention. Few stop to think and many more are indifferent to the fact that a man who knowingly endangers his neighbor's property, is an enemy to the community. If it were possible to put the unthinking people into a class by themselves, and make them pay for their selfish indifference, all would be well, but since it is not, the law should step in and protect the painstaking and progressive man who is trying to protect himself.

It is a fact that a risk may in itself be good but its surrounding hazard be so great, that the risk becomes an undesirable one, and the owner is compelled to suffer a penalty because of his neighbor's carelessness or indifference.

An insurance premium is the price paid for a contract

with an insurance company, wherein the insurance company agrees that for a stipulated percentage of a given amount, paid annually, they will pay to you that given amount in case you should be so unfortunate as to have your house destroyed by fire, and suffer a loss to that extent.

An insurance premium is not a prize that the insurance company gets for being in the indemnity business, as many seem to think.

The correct definition, as laid down by the best authorities, is that an insurance premium is the price or cost of an indemnifying contract. In determining what should be the proper rate or percentage to charge for an indemnifying contract, careful calculation must be made and this must then be checked or compared with a statistical table, which has been carefully prepared from years of experience.

The first thing to be determined is what is the risk that the insurance company takes in guaranteeing to indemnify you in case of fire.

We will take as an illustration a dwelling which is to be rated for the purpose of insurance.

If the insurance company gives you a basis rate of one per cent., it means that if your house is properly built and you will take ordinary care in protecting yourself against fire, the chances are 100 to one that your house will not burn during the year.

If the basis rate is two per cent. it means that experience has shown your chance of loss during the year to be one in fifty.

Now suppose that your house has defective flues, and by the way, these cause about thirty per cent. of the annual fires, then the rater must add an additional amount to your premium, and so he must do for every item that

would tend to hazard the risk which the insurance company assumes when it agrees to indemnify you against loss by fire.

You hear many people say, "why, my insurance rate is higher than before we had water works, or a fire department, or paved streets.

This may be true in some instances, and why? Because the increasing size of towns, the tendency to build higher buildings, and the saving of ground space, by putting houses closer together, make your danger from fire greater, and lessens the number of years that you might expect to escape damage from fire.

The demand for water works, paid fire departments, steam fire engines, salvage corps, paved streets, etc., are not the inventions of the insurance companies, but are necessitated by the ever increasing danger from fire caused by the tendency to congest values.

A modern city block will contain more in values and be a greater loss if burned than the average little city of five thousand inhabitants. As we congest our values, we must have larger fire apparatus and better fire departments, and paved streets, so that the fire extinguishing apparatus may be moved quickly and certainly, and be of value when it is needed. Other causes which necessitate increased rates are unfair laws and moral hazard. Unfair laws increase not only the cost of doing business but also increase the loss by fire, so it can be easily seen that good laws are a good investment from the assured's standpoint for he, in the end, must foot the bill.

The moral hazard covers not only the personal danger from the incendiary, but also a danger from the general indifference of a community to the enforcement of law.

These two largely increase the loss in certain localities, and you find that the insurance companies charge for these and for unexplained fires under the head of a

bad fire record, which may also include miscellaneous items. There are many ways in which laws increase the expenses of the insurance companies in doing business.

I would not have any law repealed which makes insurance a certain indemnity, but I would suggest that we carefully examine our laws and repeal such as are useless and only pander to the cry of the demagogue and injure even him.

It may be seen from the records that the loss by fire is enormous both in life and property, but I am glad to see that the larger communities are bending every effort to reduce it, and I trust that the smaller communities will profit by experience.

The lesson taught by the San Francisco disaster, is that the American Engineer, Contractor and Manufacturer have done much for future protection. The representatives of the insurance companies have discovered that it is possible to design and construct of fire proof materials buildings that would resist destruction by fire, but that it requires the best design, the best construction, and the best material, not one, but all in their united strength. The business men of San Francisco have demonstrated and assert that good construction pays; if it pays them it will pay us. Statistics show that the experience of the sixty millionaire companies has been as follows: The actual loss by fire has been 55.70 per cent. of the premiums; the expense of doing business, 36.40 per cent.; increase in liabilities, 4.91 per cent.; under-writing profit, 2.99 per cent.

We see that the total under-writing profit is less than three per cent., and this may at any time be wiped out by conflagration losses like Baltimore and San Francisco.

As an evidence that insurance companies have a hazardous existence you will note by reference to the in-

insurance year book for 1905, that they are comparatively short lived.

Of the 550 companies doing business, on Jan. 1, 1906, in the United States, there were only six foreign and three American companies which have survived for more than 100 years. Those that have survived for fifty years are more numerous, but they do not number fifty.

A New York authority estimates that fully thirty companies will fail due to the San Francisco disaster.

Reports for the last century show: From 1811 to 1830 the insurance companies did not net three per cent. on the capital employed.

From 1830 to 1850 the business showed a loss.

From 1850 to 1902 the profit averaged only one-half of one per cent.

A few companies have paid good dividends, but many have lost their capital and surplus and retired.

Many people think that the surplus of an insurance company simply represents profit. The surplus of an insurance company does not always represent profit. Experience shows that a surplus should be paid in at the beginning, to provide for expenses and excessive losses.

A company that does not add to its surplus in prosperous years cannot meet its losses in a disastrous one. A large portion of every company's asset must be set aside as a reserve for the unearned portions of the premium. As a company's business increases its reserve must also be increased to meet the increased liability. Insurance is paid for in advance, for one, three or five years, and the actual cost to the companies is unknown until the policies expire. Although the premium receipts constitute an asset, they may also create a liability, and profits must not be assumed simply because current receipts exceed current expenditures.

An insurance company cannot start business simply with a capital but must also have a surplus to cover expenses and losses, for the laws of the various States would not permit a company to exist if it took one cent out of its capital to pay losses.

Mutual companies are allowed by their own States to use twenty-five per cent. of their capital to pay losses. The small profit on the large volume of business added to the profits of the investment feature of the business makes a successful insurance company but the profit derived solely from insurance would make insurance unprofitable in the long run.

This Association can not expect (by itself) to remedy the existant evils, for the world has wrestled with the question for centuries and has given us what we have to-day.

I am certain, however, that as an Association we can do much for the prosperity and stability of the nation by standing for an intelligent improvement of the present conditions.

Let us right now resolve, not by a vain and empty resolution, but by an inward, a personal determination, to act.

We should stand for the upbuilding of a healthy public sentiment and use our best endeavors to the end that proper legislation may be had.

The laws of each State should be alike, just to the insurer and the assured. There should be a standard insurance policy, which should clearly and concisely protect the rights of both parties.

The insurance company should be bound so that it would pay to the insured a full indemnity for the actual value of the property totally or partially destroyed, and nothing more.

In view of the fact that the moral hazard is an important feature of fire insurance, no man should be given

insurance for the full value of his property. The insurance company can not watch each risk, but the owner can; and should therefore carry part of the risk.

The three-fourths value clause or something similar seems to me to be a necessity unless there should be adequate public protection in the way of an organized fire department and water works.

The law should strictly prohibit over-insurance, and provide that for violation the assured and the local agent should be penalized alike.

The insurance companies should be protected from fraudulent claims arising from a false representation of the value of the property destroyed, and from the criminal acts of the insured either directly done or indirectly connived at.

The fire marshal law should be rigidly enforced and the law should rentlessly pursue the man guilty of either incendiarism or arson as being one of the greatest enemies both to the community and State. The members of this Association have it in their power in their daily vocations to do much to reduce the physical hazards.

Our engineers can see that towns are properly laid out to lessen the conflagration hazard.

They can aid in properly paving and maintaining the streets so that our facilities for extinguishing fires may be used to the best advantage. They can demonstrate the advantage of intelligent design, faithful construction, and the use of proper materials in all new construction.

They can teach cities and towns how to properly design and build their water works; inexperienced councils oftentimes find themselves with scant appropriations for these public necessities and what to them would be an impossible problem you with your skill and experience can easily solve and provide a water system of ample ca-

capacity, without neglecting the protection of health and the sanitary needs. Upon the contractor rests a responsibility that I am proud to say he has nobly met.

The engineers well know that many of their cherished plans would have been hopeless failures but for the contractor.

You with your organizations, and your well selected tools and appliances have saved communities thousands of dollars, and made seeming extravagances public necessities. Upon you rests the responsibility to continue your efforts, and to honestly and truly build structures which shall stand the ravages of time and fire.

Another and by no means less responsibility rests upon the manufacturer and the material men. Your names are rarely seen upon corner stones but to you an honor is due. The engineer may have wisely planned, the contractor skillfully executed, but; you have made the labor saving tools, machinery and appliances. You have manufactured the raw materials and brought them finished and ready, for these many and enduring public works. It is said that a nation is judged by its public works. To the Engineer, the Contractor, and the Manufacturer always revert the credit and the glory of The American Public Works.

I would have you stand for the enactment and enforcement of just and equitable laws, the strict and faithful observance of an equitable contract. The careful and intelligent plans, skilful and honest construction and the use of the best materials in every structure.

As has been well said by the New York Spectator: "Insurance can not evade or make good an actual property loss—it only distributes the losses of the few among the many; and premium rates are governed in the long run by the percentage of the (insured) property destroyed.

If relatively safe conditions can be brought about, and the chances of burning minimized, premium rates may

be kept within reasonable limits. Public spirited citizens do well to take an active interest in the reduction of the fire hazard in their home cities, thus contributing not only to their own welfare, but to that of all other residents and property holders."

REMEMBER!

By your efforts you can do much to reduce the enormous and useless fire waste and then the credit of the reduction of fire insurance premiums will largely be due to the American Public Works Association.

W. F. WILCOX.

(The paper was received with applause.)

The Chairman: We have a communication from Col. Park Woodward, General Manager of the Atlanta Waterworks, which is an invitation to visit the waterworks system, and which the secretary will now read.

The Secretary read the following invitation:

Atlanta, Ga.,

Sept. 14, 1906.

American Public Works Association,

Atlanta, Ga.

Gentlemen:

The Water Works Department welcomes you to the City of Atlanta, and extends an invitation to the members of your Association to visit and inspect the Water Works Shop, Pumping Stations and Filter Plants.

Very truly yours,

PARK WOODWARD,

General Manager.

Mr. Rapp of the Waterworks System explained the details of transportation to and from the waterworks.

The invitation to visit the waterworks was unanimously accepted, and it was decided to go as soon as possible after the session. Special cars were provided for the delegates, to be in waiting as soon as the ball game

was over, but it was informally decided by the delegates to go in the regular cars, provided the meeting adjourned before the arrival of the special cars.

Judge George Hillyer, a former mayor of Atlanta and a former member of the Board of Water Commissioners, was seen in the audience and requested by the President to address such remarks as he saw fit to the meeting, stating that the assemblage felt honored in having so distinguished a visitor.

Judge Hillyer: "Mr. Chairman and Gentlemen, my presence here this afternoon is purely due to accident; to me a happy accident, because I am quite an enthusiast in fact on public utilities, especially water works and as you correctly intimate, I was for many years connected with the Water Department of the City of Atlanta as a member and most of the time as president of the Board of Water Commissioners. Though I am not connected now with that department I have never lost my love for and interest in it; and I think there is one thing I can say that will possibly fortify that, if it is needed. There is nothing new about it now, although it was new at one time with us. It was quite a matter of discussion and as old a man as I am, can say that our action at that time was a matter requiring considerable courage. I refer to the installation of meters in our water works system. Understand, I have nothing to do with meters or meter companies. I do not believe in graft or anything of that sort in the remotest degree, but while I was mayor of the city—our mayor is a member of the water board—our superintendent, then Mr. Richards, advocated meters and from the data he laid before me I became convinced that the installation of meters would be a wise thing. I think it is historically true that up to that time no city perhaps on either continent had adopted a universal system, that is, no city as large or approximately as large as Atlanta. My predecessor

in his administration had made a contract for coal for the year beginning in the year of my administration, basing the quantity of coal contracted for on the experience of the preceding years. The delivery of that coal began in March. We finished the installation of meters early in June, of that year. Now this is a historical fact that the coal contracted for by the previous administration for one year's supply, lasted all through my administration as mayor—and our mayors are only allowed to stay there two years—all through the second year of that administration—and until July of the third year. (Applause.)

“Previous to the putting in of meters we had been pumping on an average a little less than six million gallons of water a day but such was the waste into the sewers that did nobody any good that there was not pressure enough to throw water even in the time of a fire, with the demand on the pumping plant, into the third story of the general average of houses, and the fire department from the open hydrant could hardly reach the second story of any houses on high levels. As soon as we installed meters and made it universal and got the system under better observation the pressure raised to such an extent that we could throw six or eight streams of water from the fire hydrants over the top of the Kimball House and instead of pumping six million gallons a day we were only pumping one and a quarter millions. (A voice: How was the revenue?) That is what I meant when I said it required some moral courage. This step was resisted and vehemently opposed by a great many. There was about a fourth of our consumers who ordered the water stopped and returned to their wells but in a little while they discovered that everybody had all the water they wanted and that the service was more satisfactory. I suppose inside of six months they all came trooping back and pretty soon the con-

sumers increased so that I think the city suffered no substantial decrease of revenue. They adopted the minimum rate which was quoted without reference to quantity. Of course, those who are familiar with waterworks will understand about that. It is not the best policy to let consumers be under too much temptation about economy. They must use water enough to wash out the fixtures. Our rule was five thousand gallons a month at just the same price as five gallons, and our experience is that five thousand gallons a month is just as much as we would usually use. It takes away all temptation to undue economy as it was compensated for at that rate. The revenue has arisen until the water department is a substantial contributor to the expenses of the city. It is growing and increasing constantly and I think now the revenue is \$255,090 a year and when we put on these meters it was about \$60,000. The growth has been rapid.

“Let me tell you there would not have been any Atlanta if it were not for this waterworks, and I do not believe the waterworks could have been maintained without meters; if we were wasting as much in proportion to what we use now as to what we used then, we would have to be pumping from thirty to forty million gallons. Now we are pumping only eleven million gallons. The city could not exist.

“Our water problem is a specially difficult one. You will remember, in fact, that it comes entirely from the river, which is a stream six miles away. It is exceedingly muddy, being a stream that drains a red clay country up in the mountains. In order to get fire pressure six hundred feet of perpendicular water has to be lifted, and conveyed seven miles. Think of it. The waters of the Chattahoochee are made as clear and limpid as you see it on the tables wherever you go, and raised six hundred feet and delivered in abundance for a price that

will compare favorably with cities located on river banks and at some places like Detroit, where they do not have a filter at all. They tried it for instance at Chicago, within a level of eleven feet from the river. The rate is a little less at Detroit, but not appreciably so. Our rate is ten cents per thousand gallons when promptly paid, that is, the maximum rate. Now for wholesale consumers and large consumers there is a sliding scale that runs down very near to actual cost, which is approximately five cents per thousand gallons. It may be perhaps a little above or a little below. It has been some three years since I left the department in the way of a constant communication with it. Let me say further that there is not a body of men in America whose field is better in usefulness to their fellow citizens and service to humanity than the American Public Works Association and kindred societies, who are engaged in giving humanity the benefit of knowledge and progress in civilization." (Applause.)

Mr. Crimmins: I move that the Association recognize the value of the remarks of Judge Hillyer by a rising vote of thanks.

The motion was seconded by several members and, upon the motion being put, the members adopted it unanimously by immediately rising.

It was then announced that cars would take the delegates upon the invitation of Col. Park Woodward, General Manager of the waterworks system, from the Piedmont Hotel to the plant for the purpose of inspecting it, but owing to the ball game these cars would be delayed. It was then decided inasmuch as cars ran every ten minutes that upon adjournment the members would go out at once without waiting for the special cars, but would take the special cars returning.

At this point a communication from Mr. H. C. Baker, of San Francisco, was read by the Secretary, at which

he expressed his regrets at his absence and inability to attend the meeting. A similar one was read from Mr. J. E. Minter, of Macon, Ga. Upon motion, the Association adjourned until nine o'clock of the second day.

SECOND DAY.

Morning Session.
September 15, 1906.

The meeting was called to order at 10:00 a. m., by Vice-President Huston; Secretary Flint at the desk.

The Chairman: The first thing we have on hand is the report of the Committee on Rules. We will dispense with that and take up some of our papers, if it is agreeable to you.

We have "Engineering Fees," by Mr. Charles C. Wilson.

ENGINEERING FEES.

Mr. Wilson:

A well established and a well understood schedule of adequate fees for any professional service is as much in the interest of the employing public as the profession to which it applies. Poor pay generally means poor preach; and poor preach is about the most expensive item which enters into the cost of any plant.

This poor preach is not always, or even generally, wilful neglect because the pay is small; but engineering is too difficult in acquirement, too taxing in its pursuit and commands too little popular acclaim to attract men of first-rate ability, for the mere love of the work; and, wherever engineering is not appreciated at its proper value, where there is sharp competition in fees, where compensation is uncertain and irregular, men of force and genius inevitably drift into other callings which offer them adequate returns for their efforts; and the profession passes into the hands of mediocrity.

Sometimes, however, even under these unfavorable conditions, able men persist in practice, accepting the low and uncertain fees; but either losing their force and ability in a few years by the disheartening conditions, or finding means of supplementing their income in devious ways. There is perhaps no calling which offers better opportunities for safe grafting; there is none in which the public has less exact information; and none in which so large a proportion of the work is covered up and out of sight.

While there are few Engineers, Contractors and Manufacturers who take advantage of these opportunities, the Engineer, who habitually works for inadequate pay, is open, at least, to the suspicion of graft. And the community, which undertakes undue economy in engineering fees, is more than apt to have its funds wasted by extravagance, or misappropriated by dishonesty.

These general propositions will find ready assent in all quarters, but as to what constitutes adequate pay, there is a wide diversity of opinion, not only between the employing public, and the profession, but among Engineers, themselves.

In this discussion, I attempt to outline a general schedule of fees, which will be fair and reasonable, and applicable to average conditions in general practice; but it should be understood at the outset, that no schedule can be devised which will properly cover every case that may arise, and individual Engineers should endeavor to merit and command such confidence from their employers and fellow practitioners, as to be trusted to make a proper charge in exceptional cases.

Whatever the scale of charges, there should be no competition among Engineers as to fees; their employment should rest solely upon merit, or the personal preference of the employer. The fees should be uni-

form in all cases. This is not intended to apply to specialists and men of commanding position in the profession, who should charge for their services in proportion to their reputation; but to the general practitioner only.

The fees in every case should be sufficient to constitute the sole compensation of the Engineer; he should receive no pay except that which comes directly and above board from his client. There should be no indirect emoluments, either by smuggling clauses into his specifications, by which he is to have the appointment of the Contractor's foreman, and having them incidentally act as his inspectors, nor by commissions, "rake offs," or favors of any kind from contractors or manufacturers.

They should be large enough to cover with a safe margin the following items:

1st. The employment of competent assistants, both on the field and in the office.

2nd. The traveling expenses of the Engineer and his assistants.

3rd. The employment of experienced inspectors.

4th. A pro-rata share of the general expense of the Engineer's office.

5th. The Engineer's personal services.

Good and reliable work cannot be done without trained and experienced assistants, as instrument men, draughtsmen, and computers; and many offices employ several such men at higher salaries than are received by the average City Engineer. The average cost of this item for assistants in surveys, and in the preparation of plans, taken from a considerable number of plants—mostly small, is, approximately, 1 per cent. of the total cost of the plant.

The average cost of traveling expenses, for plants within two hundred miles of the Engineer's office, also closely approximates 1 per cent.

The cost of inspection differs so widely for different classes of work, that no average can be assumed upon which to base a flat rate, without serious injustice to some clients, on the one hand, or loss to the Engineer, in some cases, on the other; for instance, the thorough inspection of a small water works or lighting plant will cost on an average of two-thirds of 1 per cent., while the inspection of a small sewerage system will cost from 4 per cent. to 5 per cent. To meet this condition, it is necessary to either classify engineering works with a different scale of charges for each case, or to make special provision in the schedule for resident inspectors.

The fourth item, the Pro-Rata Share of General Expense, is not so easily ascertained, but in offices where an accurate system of cost accounting obtains, it is generally found that about one-fourth of the gross expenses cannot be assigned definitely to the several undertakings in hand, and must be carried in a general expense account. This general expense embraces such items as office rent, fuel and lights, book-keeping, stenography, printing, stationery, postage, advertising, soliciting, travel for observation and study; books and periodicals and membership in the Engineering Societies; items which are necessary to a naggressive and successful practice. Although there is no data available, except as to a single office, this item is estimated at 1 per cent. of the gross cost of all the works handled during the year.

The personal service of the Engineer should be given to every piece of work that goes through his office; he should invariably decline work to which he cannot give his individual attention. He is not running a factory

in which his output is limited only by the number of his employees or the extent of his floor space, but is giving professional advice, which is supposed to be based upon his personal knowledge of the particular problem under consideration, and his own grasp of all the details involved. His capacity, therefore, is limited to such number of plants a year as he can personally study. This will necessarily differ with different men and with different men and with different conditions, but again striking an average of men and conditions, which is necessarily a mere assumption, and considering the small plants usually built in the South, one office ought to be able to handle efficiently in a year five hundred thousand (\$500,000.00) dollars worth of work. An engineer designing and controlling this amount of work should earn, clear of all expenses, at least six thousand (\$6,000.00) dollars a year. When the attainments necessary to the practice of Engineering and the responsibility involved are considered, that is, by no means, an excessive figure, and is not so regarded by those business interests which employ experienced and trained Engineers on a salary. This allowance would make the fifth item, the Engineer's personal service, 1.2 percent.

The total cost of Engineering work on average small plants is shown by the following:

RECAPITULATION.

1st.	Assistants in field or office	1	per cent.
2nd.	Traveling expenses	.1	per cent.
3rd.	Inspection	0.67	per cent.
4th.	General expenses	.1	per cent.
5th.	Engineer's personal services	1.2	per cent.
	Margin for contingencies	0.13	per cent.

Total 5.00 per cent.

While it thus appears that the 5 per cent. commission, which has been so generally adopted, rests upon a fair

and reasonable basis for certain classes of work, it cannot be applied to all. Sewerage and drainage, for instance, cost, for proper inspection, from 4 to 5 per cent., and, if these are to be taken on a commission, it should be 10 per cent., or else 5 per cent. with an extra charge to cover the salaries of all inspectors.

Water power development and electric transmission are usually handled at 3 per cent., for what reason, it would be hard to say, unless it is their great cost. It would certainly seem that the difficult river surveys and gaugings, the search for data running through a long series of years, the intricate problems involved, the endless detail, and the extreme slowness of construction, should put these undertakings on a parity, at least, with the comparatively simple water works plant.

While 5 per cent. is generally considered a fair commission on small and medium plants, employers are very reluctant, and with some reason, to concede such a commission where the cost runs into the hundred of thousands dollars. The expense of none of the five items enumerated above will bear the same relation to the cost of very expensive plants that it does to the small average plants, and fairness demands that, if percentage fees are to prevail, they should be based upon a graduated scale, decreasing as the cost of the work increases.

While the percentage system has been widely adopted, it is open to some objections, the most important of which is, that it opposes the Engineer's interest to that of his client, in that the greater the cost of the work, the larger are the fees. There are few Engineers, it is true, who would wilfully make their clients spend one hundred dollars in order to make five dollars for themselves; but it is not an unheard-of-thing for them to be charged with this; and it is a suspicion which may often arise in the clients mind. Not once in a thousand times, perhaps, does an Engineer consider his commis-

sion in the preparation of his plan, but it is to be questioned whether he is able to give absolutely impartial advice as to the award between a very low bidder and an average bidder; and there is room for doubt as to disinterestedness of his attitude towards extensions, extras and additions to the contract. Another weakness, which may be noted in passing, is the exceeding embarrassment of the Engineer when he comes to collect commissions on \$60,000.00 of work, which he originally estimated would cost \$40,000.00.

A fixed sum basis would, doubtless, be more satisfactory in many respects, if it were possible to fix upon a schedule which could be well understood by the public, and which would insure uniformity of practice. This would free the Engineer at once of all interest in the cost of the work, except his client's interest, and would thus add to the weight of his opinion where cost is involved. On the other hand, it would be difficult to protect the Engineer against imposition in the growth of the client's ideas and demands as the work develops. Most Engineering works are projected on a much smaller scale than that on which they are ultimately executed, often purposely so for political or financial reasons, but more frequently because the promoter has no conception of the necessities involved until they are developed and pointed out by the Engineer. If, therefore, Engineers are employed at a stated sum, which is fixed at the outset, the fee is quite sure to be less than the magnitude of the work ultimately carried out would demand, unless he is shrewd enough to anticipate the probable growth of the project, in which case he will find it difficult to come to an agreement with his employers, who, at this stage, have no idea that the undertaking will exceed their first conception.

A Unit Price System of charges might be applicable to some special lines of work, as for instance, in Mill

Engineering, where the fees are based upon the number of spindles, and in hydro-electric work, where they might be based upon the net horse-power developed. But the field is too broad, the number of items too great and the conditions too diverse to make any practical working scale on this basis.

The salary, or per diem, system, while perhaps the fairest of all, would not be satisfactory, in general application, to ambitious and progressive men, as it would limit their opportunities too much. They could not afford to put themselves out of touch with the business world while devoting their whole time to a single project, nor could the smaller undertakings afford the necessarily increased engineering cost that this system would involve by reason of demanding the entire time of a Chief Engineer, either to do the work which an assistant could do under his direction, or idling while the assistant does it. The salary system, however, would meet one serious and important contingency, in which all other systems fail utterly, viz: Compensation for the Engineer during the long and weary months that are dragged out after the date set for completion. The owner is generally protected in these delays by forfeiture or liquidated damage clauses in the construction contract, but the Engineer usually has to pocket his loss and look pleasant. Whatever basis is adopted for the fees, it should be understood and provided that all of the Engineer's expenses and reasonable per diem for each visit, after the date set for completion, are to be paid, and this should be figured into the forfeitures or liquidated damages which the contractor is to pay to the owner.

All things considered, the percentage basis seems to offer the only practicable scheme for a uniform schedule of fees. In the allied profession of Architecture, it is sanctioned by universal practice, established

in confidence by ages, and sustained by the Courts of every land; and Engineers cannot do better than to follow this system, with necessary modifications.

The following schedule is, therefore, submitted as being fairly remunerative to the Engineer, just to the client, elastic enough to meet every case in general practice, and simple enough to be generally understood.

Full professional services, including general supervision:

For work costing \$100,000.00, or less 5 per cent.

For work costing more than \$100,000.00:

For the 1st \$100,000.00 5 per cent.

For the 2nd \$100,000.00, or fraction

thereof 4 per cent.

For the 3rd \$100,000.00 or fraction

thereof 3 per cent.

For the 4th \$100,000.00 or fraction

thereof 2 1-2 per cent.

For the 5th \$100,000.00, or fraction

thereof 2 per cent.

For the next \$250,000.00, or fraction

thereof 1 1-2 per cent.

For all cost in excess of \$750,000.00 1 per cent.

Payments to be made during the progress of the work in the following ratio:

On completion of the preliminary surveys, estimates and reports, 20 per cent. of the entire fees.

On completion of the plans and specifications, ready for bids, 30 per cent. of the entire fees.

On the award of general contracts, and the completions of all details; 20 per cent. of the entire fees.

The balance in installments, as may be agreed upon.

All necessary traveling expenses of the Engineer and his assistants to be paid by the client.

The actual salaries of all resident Engineers, Inspectors and Assistants, when such are necessary during

construction, to be charged for in addition to the above fees.

These fees are not to cover services incidental to negotiations for right-of-way, water rights, franchises or damage suits. When such services become necessary, they are to be charged for in proportion to the time and expense involved.

Nor do these charges cover services required for the completion of the work by day-labor, or otherwise, in case of abandonment or failure of contractors; nor do they cover inspections and consultations after the date fixed in the construction contract for completion. Proper clauses must be inserted in the building contracts, making all expenses of the Engineer, and a reasonable per diem for each visit after the date set for completion apart of the liquidated damages or forfeiture for non-completion on time.

Chas. C. Wilson.

Mr. Wilson's paper was received with applause.

Mr. Wilcox.—I think the old joke about covering pipe would be applicable to that, reducing in scale. A fellow might appropriate a million and save the Engineer's fee altogether. You might have to pay a man to make analysis, if it is water filtering plant. You can make a rough estimate of expense on small work, but when you come to from one hundred to three hundred thousand dollars you have got to give those matters a good deal of experimental study, and that experimental study is going to cost you a great deal of time. In Engineering work if you get it down to one or two per cent. you will find that you are suffering a loss, I don't care how big it is. Another thing is that the larger a job is the scarcer those jobs are, and the longer number of years you will have to study and work to become proficient enough to handle the job, and the man that is strong enough to handle big jobs knows enough to save

his clients enough money to pay the four or five per cent. I would not touch a piece of work for that for anybody, I don't care how big it is. I would consider it a donation to them, and I cannot afford to do it.

Mr. Wilson: The schedule I proposed did not contemplate a charge of one per cent. You would get five per cent. on the first, and so on. In addition to that you would get all traveling expenses. It would be very nearly as good as five per cent. I have said nothing about analyses or things of that sort, because we are not generally expected to provide that. I have never been requested to stand that cost. It was always understood by the clients that they would pay that.

Mr. Wilcox: I did not understand you to say that you made provision for five per cent., and for the resident engineers and inspectors in addition. My idea was that you would charge five per cent. and then slide it down.

Mr. Wilson: No, five per cent. for all service, including supervision and any resident engineers you might have for the work. I have found in my own contracts it is very hard, even on a small sewerage job, to get people to consent to ten per cent., but they are perfectly willing to pay five per cent., and would be willing to pay salaries of the inspectors, but they kick on ten per cent. like everything, and it is very seldom that they will agree to it.

The Chairman: We have with us Mr. William B. King, of the firm of George A. and William B. King, of Washington, D. C., who will present a paper on "Legal Pitfalls."

LEGAL PITFALLS.

Mr. King:

It is unfortunate that the intelligent business man who has had experience with the law is not always inclined to agree with Blackstone's saying that the law is

the perfection of reason and that what is not reason is not law.

It must be admitted that a prudent and honest man, dealing with complicated affairs, sometimes cannot satisfy himself that the decisions of the courts are reasonable or just. Occasionally he seems to have stepped into some pitfall of the law apparently spread to catch all but the wariest of travelers. Careful analysis of these decisions will generally show that the trouble arises from some conflict of two contending principles and the difficulty of adjusting them.

This paper will not attempt to show the reasons which are said to justify, or which actually justify, results apparently unjust to one party. Its object will be to point out some dangers which honest contractors have unexpectedly encountered with loss to themselves, and thus suggest precautions for the future

DISABILITIES OF FOREIGN CORPORATIONS.

Many contracts for public works are undertaken by corporations. Perhaps this would be wisest in all cases.

A corporation created by the laws of one State is known in every other State as a foreign corporation. Most of the States have provided that no foreign corporation shall do business in the State until it has complied with certain formalities, such as establishing an office in the State, appointing an agent for the transaction of its business, or registering the corporation, its office or its agent, or filing a copy of its charter in the State or County archives. One of the legal pitfalls easiest to entrap a contracting corporation is its failure to comply with such laws of the State in which it proposes to do business.

Such a law exists in the State of Tennessee. A foreign corporation is required not only to file in the office of the Secretary of the State a copy of its charter, but an abstract of this must be recorded in the register of each

county in which it proposes to carry on its business. A lumber company furnished lumber for building a house for a married woman in Shelby county, Tennessee. She failed to pay for the lumber and the company proceeded to secure the benefit of a law of the State permitting it to give proper notice and regain possession of its lumber. The defense was that the lumber company was a foreign unregistered corporation. Although it was shown that a very few months after the transaction occurred the company had been registered, the Supreme Court of Tennessee held that up to the date of its registration in Shelby county it had no right or standing as a plaintiff before the courts and could not obtain the benefits of the statutes under which it was seeking relief. *Cary-Lombard Lumber Co. v. Thomas*, 22. S. W. 743; 92 Tenn. 587.

Shortly after that a land company organized in Kentucky sued a Tennessee lumber company in Tennessee for an accounting of business done in Tennessee. The registration law of Tennessee had not been complied with and the lumber company was declared not entitled to obtain an accounting at all since it had no legal existence in Tennessee. *Cumberland Land Co. v. Canter Lumber Co.*, 35 S. W. 886.

A well-known contractor says in the "Engineering World" of July 27, 1906, that his failure to register his corporation in Pennsylvania required the most diplomatic management to avoid his losing many thousands of dollars on a railroad contract in that State.

It is true that in some States the law is not applied so strictly as in these cases, and that where a contract has been executed and the consideration passed the foreign corporation is permitted to assert and secure its rights. Even in such States a foreign corporation which had not complied with the State laws could not sue for damages for breach of a contract not yet performed.

Contracting corporations must, therefore, be on their

guard before beginning business in any State, to comply with the corporation laws of the State; otherwise the legal pitfall confronts them that in case of dispute they may be deprived of all opportunity of protection by the courts.

WANT OF AUTHORITY.

In the opposite direction, a like danger threatens in the execution of a contract by an officer or representative of a contract by an officer or representative of a municipal corporation or a State or of the United States, who has no power to bind his principal.

A distinguished judge has recently said that officers of the United States in their official capacity are special agents acting within legally prescribed limitations (*Houser v. United States*, 39 C. Cls. 522), a doctrine equally applicable to States and municipal corporations and, in a less degree, to private corporations.

It hardly seems necessary to remind contractors of a rule of law so elementary as this against which they must uniformly take precautions to guard themselves, yet the law books are full of cases where contractors have found pitfalls by reason of this rule.

An illustrative case occurred in Massachusetts about ten years ago. The aldermen of the city of Cambridge authorized their committee on public property to advertise for proposals for a school building and to contract for its erection within a certain sum. The committee contracted for this sum, but finding some additional electric work needed, obtained a bid from the Boston Electric Light Company and ordered the work done. The Supreme Judicial Court of Massachusetts declared (*Boston Electric Light Co. v. City of Cambridge*, 39 N. E. 787) that the authority of the committee was exhausted by its original contract and that it had no authority to order extras, saying that "the plaintiff was bound to ascertain

and take notice of the extent and the limitations of the power of the committee to bind the city," and that "the acceptance and use of the building by the city do not bind it to pay for extra, unauthorized work done upon it, though the same is beneficial."

The court was so deeply impressed with the substantial merit of the claim made in the case that the opening sentence of the opinion was as follows: "The claim of the plaintiff in this case is so meritorious that we regret that the rules of law do not allow a recovery of the amount claimed."

This was certainly a legal pitfall for the contractor.

In the State of Missouri, the same principle was encompassed by the proper municipal board of Kansas City authorizing the paving of certain streets, and a contract for the work was made and performed. When the work was finished and the contractor tried to enforce the liability, first of the property owners benefited, and then of the city, he was refused any redress because of a defect in the form in which the ordinance was passed. He therefore lost the entire amount invested by him in the contract. *Keating v. City of Kansas*, 71 Mo. 417. The court said as to his duty in this respect: "Keating was bound to take notice, at his peril, of the defective ordinance when dealing with the affairs of the defendant, and cannot urge against the city in this suit such defects or want of power in such officers. The requirement of the charter in such cases is the only touchstone of corporate liability."

Many more illustrations might be obtained from the reports of actual cases where contractors have suffered heavy losses and municipal corporations have received great benefits because the person making the contract has been without proper authority to bind the corporation.

The Supreme Court of the United States has thus ex-

pressed the rule on this subject (*Whiteside v. United States*, 93 U. S. 257):

"The government or public authority is not bound in such a case, unless it manifestly appears that the agent was acting within the scope of his authority, or that he had been held out as having authority to do the act, or was employed in his capacity as a public agent to do the act or make the declaration for the government.

* * * * *

"Individuals as well as courts must take notice of the extent of authority conferred by law upon a person acting in an official capacity, and the rule applies in such a case that ignorance of the law furnishes no excuse for any mistake or wrongful act."

Contractors must beware of the pitfalls ready for them through want of authority of the agent with whom they contract.

DOING WORK BEFORE APPROVAL OF CONTRACT.

The contractor is not out of danger even after he is sure that the officer with whom he deals has full authority to make the contract. Many contracts for public works require the ultimate approval of a superior officer or tribunal before the contract becomes a finality. This is especially true in the highly centralized system prevailing in most of the bureaus of the United States government. However formal may be the contract in detail, the courts have declared that there is no legal contract in existence until after the approving officer has signed it. Here is a pitfall into which contractors have fallen.

A contract for work on the Illinois and Mississippi Canal was signed by the contractor and by the local officer in charge, and was sent to the Chief of Engineers for his approval. The contractor, anxious to do his work promptly, immediately expended some thousands of dollars in his preparations. After a considerable delay he

was notified that the Chief of Engineers had refused to approve the contract. He sued for all the expenses which he had incurred on the faith of the signature of the contract by the subordinate officer. The Supreme Court of the United States declared that he could not recover what he had expended. *Monroe v. United States*, 184 U. S. 524.

This contractor had found the pitfall.

When the contract was signed by a subordinate officer for building the Naval Observatory at Washington, a long delay ensued before the Secretary of the Navy approved it. In the meantime the contractor had prepared his plant at much expense and incurred heavy losses by reason of the delay in the approval. He claimed that he was entitled to compensation for these losses, but the Court of Claims declared that he had no contract with the United States until the Secretary of the Navy had approved it and consequently could recover no damages for his losses prior to the contract coming into legal existence. *McLaughlin v. United States*, 37 C. Cls. 186.

These are both hard cases, because the contractor's diligence was the cause of his losses.

EXTRA WORK.

Contractors have found many hidden pitfalls in extra work. All engineering contracts contain provisions in some form that no obligation for extra work shall be incurred unless ordered in a particular manner. Even without such provisions, there may be a legal limitation of the authority to order extra work. Some actual cases will illustrate the dangers incurred in departing from the original contract.

The Government made a contract to build a United States court house at Raleigh, North Carolina, providing that there should be no departure from its conditions without the written consent of the Secretary of the

Treasury. The stone required by the contract and offered by the contractor was not good enough to suit the taste of the superintendent, and he ordered better stone. The contractor, viewing him as the immediate representative of the Secretary of the Treasury, furnished the better stone, stating that he should expect additional pay. He relied upon the goodness and greatness of the United States Government as a guarantee against its obtaining the benefit of better materials under such authority without paying for it. The Treasury Department refused to pay and the Court of Claims and Supreme Court of Claims and Supreme Court of the United States sustained the Department. Thus the contractor discovered an unexpected pitfall through relying on the very officer selected to represent the Government in the erection of this building. The hardship of the conditions so appealed to Congress that by prosecuting a private relief bill before both houses of Congress, he finally obtained the money which the courts had denied to him (21 Stat. L. 636). *Hawkins v. United States*, 96 U. S. 689.

In constructing the Vermont Central Railroad many years ago, extra work was found necessary in a quicksand. The contract said that there should be no claim for extra work unless it was done under a written contract or on an order signed by the engineer in charge. He verbally ordered the work done; the contractors declined to do it unless they were paid extra; the subordinate engineer in immediate charge told them that they should have extra pay. They did the work and the court said that they could not recover the extra pay refused by the company. *Vanderwerker v. Vermont Central R. R.*, 2 Vt. 130. No more ingenious pitfall could have been dug than this.

In this case, the work was done for a corporation and something may be said as to the want of power of an unauthorized agent to bind the corporation to pay for

extras. The Supreme Court of Maryland went a step further and said under a contract between individuals providing that no extras should be charged unless under a written agreement, that "it makes no difference if the extra work was ordered by the owner" himself. *Abbott v. Gatch*, 13 Md. 315.

The contract for building the Chicago Post Office provided that no extras should be allowed unless authorized in writing by the Supervising Architect of the Treasury with the approval of the Secretary of the Treasury. The Supervising Architect, having his office under the same roof with the Secretary of the Treasury and presumably acting with his approval, ordered certain extras by letter from his office in Washington. These extras went into the building and the Government had the benefit of them. They could not be taken out by the contractor. The Court of Claims held that no presumption of approval by the Secretary of the Treasury could be recognized; that his approval must be affirmatively shown; that the Supervising Architect had acted apparently upon his own responsibility, and that the Government should have the benefit of the contractor's extra work without paying for it. This contractor, relying upon the order of the Secretary's personal associate—not upon the order of a local superintendent—thus found a legal pitfall which could hardly have been anticipated. He fell into it and lost his money. *Hyde v. United States*, 38 C. Cls. 549.

These are only a few of many cases, illustrating by sad experiences the dangers surrounding extra work.

GENERAL AUTHORITY OF ENGINEER.

No other subject affords so many opportunities for legal pitfalls as the unlimited discretion of the engineer. As engineering contracts have increased in complexity, the tendency of all forms of contract has been to place



GEORGIA STATE CAPITOL BUILDING

more and more authority in the hands of the superintendent, engineer or inspector. The manner and order of executing the contract, the measurement of quantities, the determination of qualities, the settlement of disputed questions of construction—the whole measure of the contractor's liability—is made to depend upon the determination of the engineer. Of what use are elaborate and detailed specifications when their plain provisions may be set aside by the engineer's declaration that he construes them in his own way? This system reduces the contract, no matter how formally and precisely written, to dependence upon the mere will of the engineer.

If the engineer in charge of the work occupied an unbiased position as an unprejudiced representative of both parties, this method of settling disputes would have the prime merit of promptness and would not be unjust. If all engineers or superintendents were men of great ability, endowed with the judicial temperament and a lofty sense of professional standards, not susceptible to personal prejudice against an injudicious or irritating though honest contractor, their decisions might be a happy relief from the possibilities of endless litigation in courts.

Unfortunately, the engineers are the paid employees of the owner, responsible to him alone, answerable to him for the saving of money, and sometimes very willing to benefit their principal at the expense of the contractor. In some cases, indeed, the engineer in charge of the work has neither the experience nor the judgment of the contractor whose work he is to criticize and direct. Sometimes mere bad temper is a controlling factor in the exercise of unlimited power.

These conditions are ideal for legal pitfalls. The contractor construes the specifications one way when he bids; the engineer gives them a new reading when the work is done. The contractor offers materials which

have stood the test of actual experience; the engineer rejects them on the authority of the latest theoretical text-book. Many a contractor has faced, and some have met, ruin, through just such conditions. Appeals to the courts have amounted to but little, for the courts declare that when the parties have agreed that the judgment of the engineer shall be conclusive, such an agreement is binding upon them and must be enforced.

The Supreme Court of the United States has strongly upheld this doctrine under conditions where the judgment of the officer charged with the determination was absolutely wrong and the result was a proved injustice.

In 1878 a contract was made for transporting military supplies from points on the Kansas Pacific Railway to various Western posts by team. The contractor was to be paid according to the number of miles traveled, the distance to be fixed by the chief quartermaster of the district. It was shown in court that some of the distances fixed by him were less than the air-line distances between the points. The Supreme Court of the United States said that the mathematical demonstration of this error did not permit the contractor to recover for the correct length of haul, since he had agreed to accept the distances as found by the chief quartermaster. *Kihlberg v. United States*, 97 U. S. 398.

This legal pitfall was one which the most careful contractor could hardly be expected to guard against.

A recent decision of the Supreme Court of the United States declares that the same sort of a pitfall is still legal. A contract of the Engineer Department provided for rock excavation in the Louisville and Portland Canal. In case of delays by force of the elements, such additional time was to be allowed as in the judgment of the officer in charge should be just and reasonable. Delays occurred by force of the elements and the officer made his allowance. The contractors claimed that more time was

lost by this cause than was allowed by the officer and proved their additional loss of time to the satisfaction of the Court of Claims. The finding of this fact by the Court of Claims is binding upon the Supreme Court of the United States. That tribunal declared that in its judgment this fact made no difference. The contract, they said, put it within the power of the Engineer Officer to fix the time lost by force of the elements, and his determination, though proved to have been wrong, must govern the rights of the parties. *Gleason vs. United States*, 15 U. S. 607.

Here was a simple fact easily susceptible of proof. Was there was no exercise of technical judgment in determining it and no reason why one party should decide the rights of the other. The unfortunate contractors fell into a pitfall which neither they nor any one else could have anticipated and lost nearly \$70,000 which would have been theirs except for this error of the Engineer.

It is true that the courts have repeatedly laid down that there may be exceptions to this rule, limited to cases where the officer was guilty of bad faith, or made a "mistake so gross as to necessarily imply bad faith." The history of litigation under such contract provisions shows almost no cases where the officers' discretion has been in fact limited by such exception.

The danger involved in these discretionary powers where contractor or officer is corrupt has been illustrated in the noted *Green and Gaynor* case at Savannah, Ga. Here the contract provided for alternative methods of construction in building jetties. The contractor might be called upon by the Engineer for either of two methods, one much cheaper than the other. The favored contractors had an understanding with the officer in charge that they would be required to construct these in the cheaper form. Other contractors bidding had to take the risk of being called upon to build in the more expen-

sive form. The favored contractors secured the contract at a price far too high for the cheaper form of construction and were allowed to complete their work in this form. The work cost the government more than it should and both contractors and engineer have been convicted of fraud upon the government.

Certainty should be the first element of contracting. Neither party gains by vagueness and obscurity or by the vesting of unlimited discretionary powers in the engineer. Whatever else is done by this Association, it will earn the confidence and gratitude of all the contractors of the country if some form of contract can be adopted whereby contractors on public works will be relieved from absolute dependence upon the unlimited discretion of such officer or engineer as the municipal corporation, State or United States may choose to put in charge of the work.

THE BRIGHTER SIDE.

The title of this paper shows that its purpose is to set forth difficulties which contractors may unexpectedly meet by reason of settled rules of law. The courts are not anxious to enforce injustice under the operation of such rules, and in some of the opinions in the cases cited have expressed their regret that settled rules of law compelled an inequitable decision.

Very often such decisions have been avoided by limiting the application of the one-sided provisions of engineering and building contracts to their narrowest possible meaning. A few instances of this showing how the courts have kept the contractors out of legal pitfalls may close this paper.

The United States Post Office Building, at Washington, D. C., was erected under a contract providing that if materials were omitted or added there should be a "deduction" or "addition" of price at market rates, these

to be determined by the Supervising Architect of the Treasury. His decision, the contract said, should be final. The contract specified certain uses of Vermont marble. By agreement of the parties Tennessee marble was substituted, but the deduction in price was not fixed in the new agreement. The Supervising Architect made a deduction which the contractors disputed. The government contended in court that the decision of the Supervising Architect was final. The Court of Claims said that the provision of the contract already cited must be limited strictly to its terms and that in this case there had been no "omission" or "addition" of materials, but a "substitution." Consequently the contractor was at liberty to show by any available proof the value of the material furnished by him.

This discrimination is very refined since a substitution is nothing more than an omission of one material and an addition of another, but the court felt itself justified in making the discrimination because a plain case of injustice was presented. This it felt bound to correct unless the terms of the contract literally forbade the correction. *Woarms vs. United States*, 39 C. Cls. 22.

Another very recent case showing a similar disposition on the part of the courts recently arose under the contract for building the battle-ship "Indiana." Long delays were caused by the government for which an extension of time was granted. The Cramp Ship-Building Company claimed in addition to this, heavy damages on account of the delays. The United States opposed the Company's suit in the Court of Claims on the ground that upon the payment a release had been executed by the Company, as required by the contract, forever discharging the United States from all debts and "demands whatsoever in law or in equity for or by reason of or on account of the construction of said vessel under the contract aforesaid." *Cramp vs. United States*, 41 C. Cls.

This provision certainly seems as broad as legal inge-

nuity could devise, yet the gross injustice of its effect was so apparent to the Court of Claims that the court said that this release did not cover a claim of damages arising out of a breach of the contract, the release being of all claims for damages growing out of the performance of the contract. Thus the Court of Claims was acute in finding a technical discrimination upon which it might do substantial justice to the aggrieved contractor.

CONCLUSION.

It has not been possible within the limits of this paper either to point out all the pitfalls which await contractors or to show why the courts have to render severe decisions which seem injustice from the contractor's standpoint, or to show all the conditions under which the courts have granted relief. Enough has been said to exhibit very clearly:

(1.) That every word of a complicated contract must be examined with every care for lurking possibilities of danger.

(2.) That where controversies actually arise over the construction of the contracts the courts will generally be bound by the agreement as written.

(3.) That unless restrained by positive rules of law the courts will try to avoid positive injustice.

The discussion indicates that very great value of an Association like this which aims to secure a form of contract, just alike to both parties, without hidden pitfalls operating to the disadvantage of either.

Respectfully submitted,

WM. B. KING.

Mr. King's paper was received with prolonged applause.

The Chairman: Legal pitfalls are mighty bad things, and all my hair came out in one of them in about two

months. I think we made a mistake in appointing that Committee on Uniform Contracts, and that it ought to be seven instead of five, and that Mr. King and Mr. Dodd ought to be on that committee.

A Member.—I move that the names of the Committee be read.

The Chairman.—The Secretary will read the names of the Committee on Uniform Contracts.

The Secretary.—The Committee on Uniform Contracts is as follows: George O. Tenney, Edward J. OBeirne, Charles C. Wilson, W. F. Wilcox, J. S. Slicer.

A Member.—I move that we add to that Committee Mr. Dodd and Mr. King.

Motion seconded and carried.

Mr. Crimmins: Mr. President, I move we extend a vote of thanks to Mr. King for his very able paper by a rising vote.

Motion seconded and carried.

The Chairman: I have prepared a paper on "Contracts Let as a Whole" which I will ask Mr. Fair Dodd to read for me.

Gentlemen:—

When your Executive Committee requested me to prepare this article it first appeared to me to be a "good thing," especially for the contractors and engineers, and I began to collect my data for the purpose of advocating its introduction into public works lettings. I sent to one hundred members of the Association the following request: "You will confer a favor if you will kindly write me your preference for letting "contracts as a whole" or "separate," using the attached card. Please state in as few words as possible your reasons:"

When the replies began to return I soon realized the fact, contractors and engineers were not the only ones vitally concerned, but the manufacturers had their preference, and in stating their reasons I was convinced that

their statements had a great deal of merit, and the question of "Letting Contracts as a Whole" or "Separate" was still unanswered.

I desire to acquaint you with a few facts contained in their replies. About 85 per cent. of the contractors and engineers prefer "Contracts Let as a Whole,, and give for their reasons the following:

(1.) Municipalities are better served because it invites a better class of bidders.

(2.) Confines the responsibility to one contractor for the complete job.

(3.) Completes the work within the specified time.

(4.) Relieves the engineers of a large amount of work necessarily involved where work is let separately.

(5.) Elimination of friction between different contractors on one contract.

(6.) The control of the labor situation.

(7.) Prevents manufacturers from becoming sub-contractors.

(8.) Insures prompt and proper construction.

(9.) The work will cost less.

(10.) Prevents delays on account of imprompt delivery of materials or machinery by the manufacturers.

(11.) City does business with one contractor and cuts out a whole lot of irresponsible parties from bidding.

(12.) When contracts are let as a whole for a lump sum, extras are reduced to a minimum.

(13.) A uniform scale of wages.

(14.) No dispute with reference to commencing point or ending point of contract.

(15.) A definite pay day.

Owing to a small percentage of engineers and contractors favoring contracts "let separately," I will give their reasons jointly with manufacturers.

(1.) This is a day of the specialist and a concern which devotes most of its time and energy to a particular pro-

duct, cannot only produce a product of higher quality but can afford to market it cheaper.

(2.) The manufacturer can deliver his machinery, superintend the erection, for less than the general contractor, thus saving the city money.

(3.) Unit prices govern adjustment.

(4.) If the machinery is bought direct by consumer the general contractor has no interest in the price or responsibility regarding the efficiency of the machinery or payment for the same.

(5.) The city is best served when it buys machinery direct from the manufacturer or its agents.

(6.) The city will secure better prices on materials and the contractor is more secure in the matter of good percentage of profit.

(7.) It is better for manufacturers to deal direct with purchasers should it be necessary to change the specifications.

(8.) Owing to the number of irresponsible contractors in the field not worthy of credit or confidence and who use prices as a club over competitors, in order to get lower prices, which is demoralizing to the trade, it is desirable to deal direct with the city.

(9.) Manufacturers will have a fair showing by dealing direct, whereas, if they bid through contractors and work with one contractor, although they may be the lowest bidder, they will lose the work if some other contractor works with a competitor.

(10.) Manufacturers should not have final settlements held up until the entire work is completed, when they have finished their work complete and satisfactory.

(11.) The purchaser is better served when contracts are let "separately," because the general contractor will always bid on the cheapest material or machinery when the city should get the best.

(12.) As a rule the general contractor makes a botch of erecting machinery in spite of the consulting engineer.

(13.) Bidding to general contractors may result in the manufacturer not having a bid in at all. Some contractors may use the price to get the job and then trade around for a cheaper grade afterwards.

(14.) Some contractors have not enough money to swing the job, depend on payments from the city, and if their estimate is held up due to inferior work or any other reason, they will hold the manufacturers money, even though they are not to blame at all.

(15.) Contractors may go broke on the job and tie up the manufacturers money indefinitely.

Gentlemen, I have cited to you fifteen good reasons for "Letting Contracts as a Whole" or "Separately." It appears there has been dissatisfaction manifested in either case, and this was one of the main causes which started this Association; and, I wish to say to you, gentlemen, this Association will never be a success unless you harmonize these conditions. This can not be done by your existing rules. Rules which tend to lessen these difficulties should be made.

In order to open up a discussion along these lines I am going to offer some suggestions which I hope will bring about some results.

Let me say to you, Mr. Contractor and Mr. Engineer, you are not the most important persons interested; first, because you have not the capital or the combined energy and experience which is necessary to the successful manufacturer. The large amount of capital needed by the manufacturer in order to conduct his business is evident by the amount of taxes collectable. I can name you one of the many manufacturing companies represented here today who has more money involved than all the contractors and engineers in the Association combined.

Manufacturers are engineers, because they employ consulting, designing, supervising and erecting engineers. They are contractors, because they contract to deliver

the goods; they are a big factor in the growth and development of a city, because they employ many thousand of wage earners. If this is true they should be considered first and last in that which tends to build up or tear down their business.

You kill the manufacturer, and you, Mr. Engineer and Mr. Contractor, will look for another vocation in life.

I believe in "Letting Contracts as a Whole" in many instances to be a good thing for the purchaser whether it be a corporation or a municipality, and I may give for my reasons as follows:

(1.) Because I am an engineer, and in speaking for myself I would say; I have one party to hold responsible for the workmanship, quality of material and completing the work within the specified time, thus concentrating my forces and greatly reducing my labors. I believe it is economy for the city because it enables the city to reap the benefit of the improvement at an earlier date than it would be possible to do should there be several contracting parties to complete the work. For example, let us presume that a city has bonded itself for \$100,000.00 to construct a certain improvement, and we find that it can contract to complete the job, say, ninety days sooner by letting the "Contract as a Whole" instead of "Separately," we have a saving of interest (at a rate of 5 per cent. per annum) on \$100,000.00 for ninety days, which equals \$1,250.00. It is also a great saving to every citizen to be able to derive the benefit from its earlier completion. If the streets are to be torn up for the necessary improvements, his business is naturally impaired for a certain length of time. If the improvement is a system of water works, he enjoys a saving in the way of fire protection. If a system of sewers, he enjoys sanitary conditions; if an electric plant, its luxury, all at an earlier date if the contract is "Let as a Whole."

But, gentlemen, I am not in favor of letting contracts

as a whole if it means additional cost or a probable loss to the manufacturers, because in ninety-nine times out of a hundred the purchaser will have it to pay.

Nor am I in favor of "Letting Contracts as a Whole" if it is necessary for the general contractors to get together and compel the city to pay their so-called expenses.

In answer to the replies favoring contracts "Let Separately," I submit the following for your consideration.

If this be the day of the specialist, I am in favor of bringing him to the front, and to specify, that the contractor shall employ him on the work.

If the manufacturers can deliver the machinery, superintend the erection for less than the general contractor I am in favor of specifying that they shall do it; but, they should be held responsible to the general contractor, who in turn shall be responsible to the city.

If unit prices govern adjustment. It is an easy matter to determine a schedule of prices before the contract is let. If the general contractor has no interest in responsibility regarding efficiency of the machinery or payment of same, I am in favor of preparing specifications in such a manner that he will be interested.

If the city is better served by buying direct I am in favor of letting it do the buying, through the consulting engineer, but at the expense of the general contractor, i. e. assume a case where the contractor is to purchase a large quantity of water pipe, sewer pipe, machinery, etc., thus increasing the size of his bond and calling for a large amount of money to swing the deal, I am in favor of the city making the purchase and to advance the payment, charging the expense, if any, to the general contractor.

If it is necessary to change the specifications with reference to the manufactured product, I am in favor of doing so with the mutual consent of the purchaser.

If the manufacturers are to suffer a loss owing to the number of irresponsible contractors in the field, I am in favor of compelling the general contractor to show receipts for payments before final settlement.

In order to protect the manufacturers when bidding to the general contractors, I am in favor of making the contractor specify the name of the manufacturer of the product he proposes to furnish in his proposal.

I am in favor of compelling the contractor to pay the manufacturer in full for all machinery and materials offered as soon as approved by the engineer, regardless of the final estimate.

The general contractor has no right to assume that the purchaser wants the cheapest or inferior machinery, unless so specified.

If the contractor is not competent to erect a machinery job, I am in favor of compelling him to secure the services of the manufacturer's erecting engineer.

If the contractor has agreed to use the manufacturers product at a price agreed on before the letting, and afterward awarded the contract fails to keep his promise with the manufacturer, I am in favor of annulling his contract.

I am in favor of compelling the general contractor to show evidence of his financial standing and capability of fulfilling his contract, both to the city and the manufacturers, before accepting his proposal.

I am in favor of doing away with irresponsible contractors, incompetent engineers and inexperienced manufacturers.

I am in favor of making rules whereby these results can be obtained.

Gentlemen, I thank you for your attention and hope you will give the subject your careful attention, it needs it.

Richard C. Huston,
Consulting Engineer.

Mr. Huston's paper was received with applause.

The Chairman: I will appoint Mr. Crimmins to read the paper on "Standardization of Hydrant Nozzles" prepared by Mr. W. H. Hume, of Chattanooga.

STANDARDIZATION OF HYDRANT NOZZLES.

The first organized attempt to secure the adoption of the standard hose thread, for hydrants and fire hose, seems to have been in 1873, when at a meeting of the International Association of Fire Engineers, at Cleveland, Ohio, a universal thread of 7 1-2 to the inch on 2 1-2 inch hose was recommended.

The subject was brought up from time to time, at intervals of four or five years, without any definite result or sustained agitation, until 1891, when we find that Mr. C. A. Landy, of the Fabric Fire Hose Co., presented a paper to this same association, recommending a coupling 2 1-2 inch inside diameter, 3 1-6 inches outside, and 7 1-2 threads per inch.

There is no record of further action until at a meeting of the International Association of Fire Engineers, in Chattanooga, in 1904, a committee was appointed to confer with a similar committee of the National Fire Protection Association, to work out the problem jointly.

The result of this movement, carried on for thirty years, and culminating at the Chattanooga meeting has resulted in the adoption of a series of standards, which are presented herewith, and which have been unanimously approved by the following organizations:: The American Waterworks Association, International Association of Fire Engineers, National Firemen's Association, New England Waterworks Association, Pennsylvania Waterworks Association, North Carolina Firemen's State Association, National Board of Fire Underwriters, National Fire Protection Association.

The committee on Standard Hose Couplings, consisting of Mr. Griswold, Chairman, and Messrs Bruen, Henley,

and Campbell (the last named gentleman being a member of our association), have, as a result of their labors, presented us with a number of nozzles, ranging in size from 2 1-2 to 4 1-2 internal diameter, which cover the ground very fully.

The hose in most universal use throughout the country, is 2 1-2 inches internal diameter, and, for this there has been selected a coupling 3 1-2 inches outside diameter, 7 1-2 threads per inch.

The 3 inch hose is 3 5-8 inches outside diameter, 6 threads per inch. For hose 3 1-2 inches internal diameter, a coupling 4 1-4 inches outside diameter, 6 threads per inch is recommended, and for 4 1-2 inches, the outside diameter is 5 1-4 inches, 4 threads per inch, this gives a range of sizes which will meet any condition found in practice.

The form of thread adopted is the 60 degree V type, with one hundredth of an inch taken off the top and added to the valley in the 2 1-2, 3, and 3 1-2 inch coupling, and two one hundredths of an inch in the 4 1-2 inch coupling.

That the standard of 7 1-2 threads per inch for 2 1-2 inch couplings was not selected in a hap-hazard manner, or arbitrarily established, may be shown by the fact that 70 per cent. of the nozzles now in use are of this size, or so near it that they can be used without change.

In cities where existing couplings and attachments are such that the National Standard cannot be used, it is possible to carry a number of special connections, or short nipples, having the standard thread on one end and the old thread on the other. In this way, as fast as the hose wears out, it can be replaced with new hose having the National thread. Thus, in a very short time, the entire equipment would be gradually standardized at a comparatively small expense, spread over a term of years.

The drawings and dimension tables accompanying this paper, which are copied from the pamphlet issued by the

National Fire Protection Association practically constitute working drawings, which can be used by manufacturers of Hydrants, Hose and Fire Protection Apparatus in making up their standards.

When we consider the disastrous results which occurred at the Baltimore and Toronto fires, due to the inability of the neighboring fire companies to render assistance, owing to the different hose couplings, the need for immediate action is at once apparent.

As stated in the body of this paper, the couplings herewith presented have been adopted by the National Board of Underwriters, and the National Fire Protection Association, and have been approved by the various associations already mentioned.

It is also very encouraging to note that the City of St. Louis has appropriated \$50,000 to change all its couplings from 6 to 7 1-2 threads per inch. This is an example of what may be successfully accomplished, when the question is taken in hand forcibly, and with well directed effort.

Looking at it in this light, and considering the importance of the American Public Works Association, and the influence it exerts throughout the South, an expression of approval coming from this body would be largely instrumental in furthering the adoption of the Standard Thread, a cause, which I am sure we will have at heart.

In conclusion, the writer would strongly urge upon this Association of drawing up suitable resolutions signifying their approval of the National Standard Coupling, and, also, as individual members, in pledging ourselves, by constant agitation to assist in its universal adoption.

Received with applause.

A motion to adjourn until two o'clock was heard.

The Chairman.—There is just one thing I want to call your attention to, there have been some deaths in our membership, and if any one knows anything about the

deceased members, please go to the Membership Committee and give them any information you have.

Mr. Bowron.—I do not think we can adjourn at this hour and get through with the business we have on hand today. I have no objection to adjourning for five or ten minutes, because I know that the Committee on Rules has made several changes, and we ought to be governed by our experience at the first convention. I remember there was a long discussion brought about by changes in our rules. I believe there are no further papers. I move that the report on By-Laws be heard.

Motion seconded and carried.

Mr. King.—The Committee on By-Laws respectfully recommends the following changes in the By-Laws of the Association:

Article 1, second paragraph. Strike out the following:

Its object is to provide and maintain suitable resolutions, in connection with the execution of public works; to encourage papers, suggestions and deliberations by its members, for the improvement thereof.

And insert in lieu thereof, the following:

"Its objects are to standardize general specifications in engineering and architectural contracts, to make rules for the construction of public works, to improve the conditions of such construction, to hold meetings for the consideration of papers and for discussion upon all subjects connected with the construction of public works, and in all other ways to promote harmonious relations between manufacturers, engineers, contractors and officers of municipal corporations, and other public authorities, local, state, or national, engaged in the construction of public works."

Article 4. Strike out section 5, as follows:

To make such rules and regulations as may be necessary for the government of the Association and its members, and to alter and amend the same.

Article 4, strike out section 9, as follows:

9. To make rules for its government, and to fix and enforce penalties for the violation of such rules.

Article, strike out section 14, as follows:

14. No member of the Executive Committee shall sign the recommendation of any applicant for membership.

Article 4. Renumber the remaining sections to correspond with the above amendments.

Article 5. Strike out section 5, as follows:

5. All applications for membership must be recommended by a member in good standing.

Article 5. Renumber the sections to correspond with the above change.

Article 7. Section 1, reading as follows:

The membership fee shall be three dollars.

Strike out "three" and insert "five."

Article 7, Section 2, reading as follows:

2. The annual dues shall be one dollar, payable in advance at or before the time appointed for the annual meeting.

Strike out "one" and insert "two."

Article 17, reading as follows:

Amendments to the by-laws may be made at any meeting of the Association, annual or special, by a two-thirds vote of the members present, after notice has been given in writing to each member for at least one month.

Strike out the following:

"After notice has been given in writing to each member for at least one month."

In view of the existing provisions of article 17, as above quoted, your Committee submits to the Association the question whether it has the power at this time to make any of the above amendments, no notice having been given in writing to the members of the proposed amendments one month in advance of this meeting.

If the Association considers that it is without power

to make the amendments at this time, then the Committee recommends a resolution declaring it the sense of the Association that these changes should be made, and directing the Secretary to submit the proposed amendments in writing to each member of the Association at least one month before the meeting of the Association.

Wm. B. KING,
J. S. SLICER,
FAIR DODD,
Committee on By-Laws.

The Chairman.—You have heard the report, gentlemen, what will you do with it?

A Member.—I would like to ask the Chair for a ruling on this point, whether this meeting has power to change these by-laws.

Mr. O'Beirne.—I would like to say in connection with this tangle about the by-laws, that the by-laws of this Association have never been adopted by this body. They were written after our Gulfport meeting, and presented to the Executive Committee and adopted by them, but so far as this body is concerned, it seems to me that we have power to change them.

Mr. King.—I think, under the statement, that these by-laws have never been adopted, it seems to me we can do anything we please, and I offer the suggestion that we take these by-laws, with the amendments offered by the Committee, and take up the by-laws seriatim. I, therefore, offer the motion that we proceed to the adoption of the by-laws, and they be considered adopted as read, with the amendments made by the Committee on By-Laws, unless some member desires to offer an amendment to them at that time.

It was suggested by a member that some time be set for holding the annual meeting, and for the payment of the annual dues.

Mr. King.—I move that we proceed to consideration

and adoption of the by-laws, and they be taken up section by section, and then be adopted as a whole.

A Member.—I would like to suggest that in order to save time a reasonable time be allowed anybody to raise any question and then proceed to a reading.

Mr. King.—I will amend my motion so that we proceed immediately to the consideration of the by-laws, read them section by section, and in the absence of amendment, each section be adopted as read.

Motion seconded and carried.

Mr. King.—I will read the articles as we go along, and substitute where the Committee has recommended a substitution for the printed article,—the amendment proposed by the Committee.

Article 1, read. Allowed to stand as read.

Article 1, read.

Mr. O'Beirne.—I would like to state here that the point came up at our meeting, and was considered by your Executive Committee, and is likely to happen in conventions, in case our president was ill, and we had only one Vice-President, and he was ill, we should have no presiding officer. Your Executive Committee recommended in their report that we change the by-laws so as to have three Vice-Presidents. I know that recommendation has not been acted upon, and I make a motion that we change that part of the by-laws so it would read: "One President and three Vice-Presidents."

Motion seconded and carried.

Article 3 was read. Allowed to stand as read.

Article 4 read.

Mr. Giles.—There are some conditions in several of the sections of this article that place me in a rather embarrassing position, and I presume there are some representatives of other manufacturing companies who are in the same situation. That is the power conferred upon the Executive Committee in Section 6, to make a penalty

for violating the rules and enforcing same, and in Section 9, which seems to me almost a duplicate of Section 6—rules for government and fixing and enforcing penalties for violation of such rules. Any legal executive committee would have the power of censure, fine, suspension or expulsion from the Association of any member for just cause. Now, my membership in this Association is entered in the name of the General Electric Co., and it is absolutely impossible for me to subject the General Electric Co., to a fine, and I am without authority to do so, therefore my membership in this Association is an absolute impossibility under these rules, and I would state at the time I joined I discussed the matter to some extent with Mr. O'Beirne, and I understood that this would be considered at this meeting, and some modifications be made.

Mr. O'Beirne.—I would like to say in answer to Mr. Giles that the Executive Committee recommended that the rules be not made arbitrary upon the members, and that course has been pursued. However, when these rules were written I was under the impression that the rules were to be arbitrary, so taking that view of it we had just as well eliminate the objectionable features. We cannot assess a penalty on any member unless he violates some rule of the Association. As the rules are not arbitrary, he cannot violate them in a sense, as they now stand. We have agreed to give the rules our moral support, and with that object in view, I move to strike out of the by-laws Sections 6 and 7, Article IV.

A Member: I would like to say that my position is exactly the same as Mr. Giles', and I think they are calculated to work a hardship on this Association, and I, therefore, second Mr. O'Beirne's motion that those articles be stricken out.

Mr. King: That involves the old Section 6 and the old Section 7, as printed in Article IV., and also involves

striking out of the old Section 11 the word "fine." Those are the specific changes as required.

A member: Read that particular clause, please.

Mr. King (reading): It is proposed to strike out Section 7. Now in old Section 9, as printed in Article IV., that has been amended by the Committee on By-laws recommending the omission of that. The old Section 11, Article IV., says "the Executive Committee shall have the power to censure, fine, suspend, or expel from the Association any member for just cause," and the proposition is to leave out the word "fine."

Mr. O'Beirne: I think if you will allow Section 11, Article IV., to stand, leaving out the word "fine," so its utmost power will be to expel a member, it would be wise to do so.

Mr. King: The present plan is to adopt Article IV., with Sections 5, 6, 7, 9 and 14, and strike out the word "fine" from Section 11, and re-prepare the remaining sections to correspond with this.

Motion seconded and carried.

Article V. read:

A member: I move the adoption of that article, with Section 5 stricken out in regard to application of membership being recommended by members in good standing.

Motion seconded and carried.

Article VI. read: allowed to stand as read.

Article VII. read: with an amendment offered by Committee on By-Laws:

Mr. O'Beirne: I would like to suggest that the dues be increased. It seems to me if this Association is going to do anything, it will want more money. I don't know what our total membership is at the present time, or whether the amount of money on hand is sufficient for our purposes, but I think the impression is conveyed to people who are contemplating joining the Association that

it does not amount to much, for the reason that the dues do not amount to much.

The Chairman: To get the money that we will need, we will have to raise our dues.

Mr. O'Beirne: I merely offer this as a suggestion. It seems to me that we could do a great deal if we had more money. We started out with a small fee with the idea of building up a large membership. I have no objection to making the fee ten dollars, if you think it is wise to do it. The Executive Committee discussed this the other afternoon, and they thought it well to raise the membership fee to five dollars for another year, and at the expiration of that, to raise to ten dollars. If you think it wise to raise now to ten dollars, I suggest someone make a motion to that effect.

Mr. Giles: I suggest that the modification made by the Executive Committee be adopted, and that the dues be \$5.00 instead of \$1.00, and they be paid \$1.25 every quarter, and in that way there will be money coming in throughout the year.

Mr. O'Beirne: The objection to that is, we have no paid secretary to do the work of collecting. That would put a good deal of work on somebody, and our secretary could hardly keep up with it, and it is such a small amount of money, that the exchange on the checks and the postage stamps would eat it up. I think you had better hold to annual dues, paid annually, but I do not think the annual dues ought to exceed more than one-half the membership fee. I do not know of any association in which the annual dues exceed more than one-half of the membership fee, and while it looks like a small matter, I believe if you restrict the annual dues not to exceed one-half of the membership fee, you will meet with the wishes of the majority of the members.

Mr. Adams: In my mind the only way the work contemplated by this Association can be accomplished is by

a larger membership, and I think this question of dues ought to be kept down just as low as possible, in order to make it attractive to members to come in, and I believe any increase in the dues will result in keeping some members out. I know personally several members who belong because the dues have been a trifle. What we want is more members, and I believe it would be a wise thing to keep the dues down for the present to two dollars per annum.

Mr. O'Beirne: The Secretary's report of yesterday showed that the membership of the Association, with the pending applicants that were qualified to become members, made a total of 198, and in the Finance Committee's report to be read later in the day, you will find that the expenditures for the past two years have been in round numbers one hundred dollars. I think there are one or two bills that are not included in that That batch of bills will not exceed fifty dollars. There may be some extra expense in the way of literature, or matters for this Convention, but there is a balance in the treasury at this time of approximately \$311.00, and if we have accumulated this much money with the annual dues at \$1.00, and a membership fee of \$3.00, I believe that the present change that is proposed by the Committee on By-Laws to make the membership fee \$5.00, and the annual dues \$2.00, will be necessary for all purposes for the year to come. I believe, however, that the time will come, as has been stated, that in order to make our Association a valuable one, we must look forward, not only to increased membership, but also to getting out such literature as will show what we are doing, which are matters of interest to the members of our Association, and I believe that with the membership fee of \$5.00 and the dues of \$2.00 we will probably be able to appoint an assistant secretary who can take charge of correspondence and work that our present secretary has not the

time to attend to, I would, therefore, suggest that the membership fee be allowed to remain at \$5.00, as suggested by the Committee on By-Laws, and the annual dues at \$2.00.

Mr. Giles: I understand that the \$5.00 initiation fee keeps more men out of the Association than the \$4.00 annual dues. If a man is going to join, he pays a year's dues at the same time, and he has got to plank down \$7.00 under this proposition, and for my part I would rather see the initiation fee at \$3.00, and \$4.00 dues, payable \$1.25 at a time. If a man was going to join this Association, the \$1.25 would be so insignificant that I don't think it would act as a drawback to any man who is big enough to be a desirable member of this Association. So far as the Secretary's work is concerned, he ought to be allowed a salary of \$25.00 a year to cover his work in sending out his notices; he ought to be allowed enough to pay a man for this work. He may not do this himself, but may employ a stenographer or clerk to do this work for him, and he has to do this work at his own expense. I think \$25.00 a year for a secretary's salary is low enough. Now about this \$1.25 proposition, it enables the Executive Committee and the officers of the Association to keep in touch with the members of the Association and keep up their interest; for if they pay their dues every quarter, he sees they are keeping up their interest. Those fellows who join because the dues are only a dollar, I don't think are the kind of members we are looking for.

Mr. King: The discussion on this subject has been very enlightening to me. There has been a great deal said on the subject of our membership dues. I think we need as many members as we can get, and I think it would be a little better to keep our membership fee down low, and put a little increase on the annual dues. Personally, I think we should name \$5.00 a year as the annual dues. I do not think we should collect that fee quarterly. I

think we can all calculate that it costs at least five cents a letter to send a letter off—two cents postage, three cents for stationary and time of the clerk, and the acknowledgement to be sent would cost five cents, and there would be five cents exchange on the check, so to collect those dues we would be paying something like fifteen per cent. on the collections. I suggest we put the membership fee at \$3.00 and the annual dues at \$3.00. That would make \$6.00, payable on entering, and \$3.00 a year afterwards. Now we are going to need some money. The Association is going to increase each year as we go on, and there are efforts in the United States to make other contractors, or public works associations. There is one already organized in Pittsburg. There is a strong effort in Chicago to get the contractors together. Those organizations should all be brought into this organization. Wherever there is a meeting to organize such an association, some member of this Association should be present to endeavor to secure their affiliation and ultimate amalgamation. If this is to be done, we need some money to pay traveling expenses. I think \$3.00 a year would be a sum that members would not feel, and would not exclude members from it.

Mr. Crimmins: I am in favor of \$3.00 initiation and \$4.00 a year for dues, and I move we name \$5.00, that is a round sum, we are all accustomed to, and don't feel shocked over the largeness of it, and that we pay it twice a year. I don't think two collections a year would be a very great hardship on the Association.

Mr. Tenney: I belong to several associations where the dues are \$10.00, and I should say \$5.00 initiation fee and \$10.00 dues. One of the things that made me join one or two of those associations was they furnished reports showing what they were organized for. When I saw one of those volumes I saw my money's worth right there. I think that the proceedings of this meeting ought to be

published with the papers submitted. When a contractor sees one of these articles he sees where he gets his ten dollars' worth, or five dollars' worth, and I am heartily in favor of the higher dues and higher initiation fees.

Mr. O'Beirne: It seems to me we are taking up a good deal of time to settle a small question. It seems to be the general sense that the most that ought to be paid to become a member should not exceed \$5.00. It has not been the custom when a member joins to pay the annual dues. If a member joins during the year, he simply pays his membership fee, and his annual dues become due on the date the annual meeting is fixed. I make a motion that the membership fee be \$5.00.

The motion was seconded and carried.

The Chairman: Now take up the annual dues.

Mr. King: A motion is made that the annual dues shall be \$2.00, payable in advance at or before the annual meeting. Members elected before the annual meeting shall not be liable for dues before the next meeting.

Motion seconded and carried.

Article VIII. read.

Mr. Butner: That ought to be changed to a majority of the members present at the meeting. I move that it be amended by notices being sent out by mail and the vote to be taken by mail. You would not want to call a special meeting during the year at any time to consider it.

Mr. Bowron: It appears to me that the members of this Association who take enough interest in its affairs to attend the annual meetings are the competent people to pass upon these things; I think the majority of the members at the annual meetings are competent to settle these things without consulting people by mail who have not taken enough interest to attend a meeting.

Mr. Ladd: I would like to suggest that some limitation be placed in our by-laws as to the total amount of assessments that any member might be liable for. This

liability might deter a good many prospective members from joining the Association. I move that Article VIII. of the by-laws be struck out.

Motion seconded and carried.

Article VIII. (formerly IX.) read.

Mr. King: I move that Article VIII., formerly Article IX., be adopted so as to read as follows: "Any member who shall fail to pay his dues for three months after they become due, shall upon the fact being presented to the Executive Committee, cease to be a member."

Motion seconded and carried.

Article IX. read. Stood as read.

Article X. read.

Mr. Giles: I make a suggestion as an amendment. As laid out here, our President, Vice-President and Secretary are sort of fifth wheels in this proposition, and I would like to suggest that the President at least, and such other officers as it may be deemed wise, be made ex-officio members of the Executive Committee. I think the President, at least, should be. Otherwise, being the President and Vice-President merely means that they shall preside at the meetings.

Mr. O'Beirne: The only serious objection to that is, it is so hard to get a quorum to do any business if you make that committee too large.

Mr. King: : As I understand Mr. Giles' motion, it is that Sections 6, 7 and 8 of Article X., as read, be transferred to Article IV., and the other sections of Article X., as read, be adopted.

The motion was seconded and carried.

Article XI. read.

Mr. King: : This requires change to three vice-presidents, as we have adopted that article. I, therefore,

move the adoption of Article XI., as read, with the exception of the change to three vice-presidents.

Motion seconded and carried.

Article XII. read.

It was moved that the article be adopted with the change of the word "vice-president" to "one of the vice-presidents."

Motion seconded and carried.

Article XIV. read: Allowed to stand as read.

Article XV. read: Allowed to stand as read

Article XVI. read: Allowed to stand as read.

Article XVII. read.

Mr. Wilcox: We ought to be able at the annual meetings to make such changes in the by-laws as seem necessary, and not be obliged to refer them over to another year.

Mr. Tenney: I think that notice should be given to the members of proposed changes in the by-laws, especially when you provide this in a special meeting.

Mr. Giles: I move that the by-laws be changed at any annual meeting by two-thirds of the members present.

Motion seconded and carried.

Mr. Giles: I move an amendment to Article II., that the President and Secretary be members of the Executive Committee.

Mr. Thomas: I would like to substitute for Mr. Giles' motion that the President have authority to convene the Executive Committee on such matters as he deems proper during the year, but I really believe that the Executive Committee ought to be left intact. I think the Executive Committee as a rule in all associations passes on all matters which come up regarding the interpretation of the by-laws, and passes judgment on all matters for the welfare of the association; and I believe it is customary for the Executive Committee to act the judicial part. I think the President should have the right to con-

vene the Executive Committee and submit any matter of this kind, but I think it is a judicial matter. It should be passed on by the Executive Committee of the Association.

Mr. Giles: I think the general view is correct as applies to railroad corporations, but in organizations of this character I think the president is supposed to be somewhat of a judiciary himself.

Mr. O'Beirne: I do not think it would be wise to make the officers members of the Executive Committee. There are a great many reasons against it. It may be necessary for the Executive Committee to take action against the officers. I do not believe you will find it the practice in associations for the officers to be members of the Executive Committee.

Mr. King: I move that the by-laws be adopted as a whole as passed on seriatim.

The motion was seconded and carried.

The Chairman: I would like to have the report of the Membership Committee.

Mr. Crimmins: In the absence of the Chairman of the Membership Committee, it becomes my duty to report to you that we have considered the recommendations of the President which were referred to our committee, and which have to do with subsidiary organizations in the Association, one of which is to be known as the Engineers' Association, another the Manufacturers' Association and the third the Contractors' Association. It is our opinion that the suggestion and idea embodied therein is an exceedingly good one, when the Association becomes large enough to make it necessary.

It was part of our duty, and we did check a report of the Secretary, and we find that the Association now has 190 members, 148 of whom have qualified. It becomes our sad duty to call the attention of the Association to the fact that since the last meeting of the Association

at Gulfport, death has invaded our ranks on three occasions, taking from us James F. Casey, John M. Healy and Van de-Hite Smith, W. O. Glass and Wm. Reynolds Fleming. We recommend to the Association that in the published report of the proceedings of the Association there shall be devoted to each of the departed members a full page, on which shall be inscribed, "To the memory of James F. Casey"; next page, "To the memory of John M. Healey;" third, "To the memory of Van de-Hite Smith;" fourth, "To the Memory of W. O. Glass," and, fifth, "To the Memory of Wm. Reynolds Fleming."

Respectfully submitted,
Morgan Llewellyn,
P. J. Crimmins,
E. C. Butner.

Mr. O'Beirne.—I move that the report be accepted and that the recommendation be carried out.

The motion was seconded and adopted.

The Chairman.—As the election of office will come up this afternoon, I believe it will save time to have a committee select candidates, and I will, therefore, appoint a nominating committee to consist of: A. M. Lockett, C. M. Lodd, E. J. O'Beirne, Adam Jones and E. F. Kittson.

A motion to adjourn was heard.

Before this was passed upon, it was announced by Secretary Flint that a smoker would be given in the convention room at 8:30 that evening, to which all members of the Association were invited.

A member.—Mr. Chairman, I move that the invitation will be extended to the members of the Water Works Committee, and people who have been so kind to the Association.

Seconded and carried.

The motion to adjourn was seconded and carried.

The Chair then announced the meeting adjourned until two o'clock P. M.

SECOND DAY

Afternoon Session, September 15, 1906.

The convention was called to order at 2:15 P. M. by Vice-President Huston, Secretary Flint at the desk.

The Chairman.—We are now ready to renew the report of the Committee on Rules.

Mr. Tenney.—Mr. Chairman, your Committee on Rules has carefully examined the rules of the Association, and while they appear to meet general conditions in a satisfactory way, we have decided to recommend some amendments and changes, which we believe will tend to make the rules more definite.

We feel, however, that any action taken by this convention in reference to the Association Rules should be conservative, and we ask that each rule changed be voted upon separately.

We submit the following recommendations:

First. Rule 2 now reads as follows: "When work is done on a percentage basis, security should be given to guarantee estimate and faithful performance of the work."

We recommend that the words "estimate and" be struck out, so that Rule 2 shall in future read as follows: "When work is done on percentage basis, security should be given to guarantee faithful performance of the work."

Second. Rule 3 reads: "Designing Engineer shall not compete for work advertised to be let under his plans and specifications."

We recommend that Rule 3 be changed to read: "Architects and Engineers shall not bid on contracts for work advertised to be let under their plans and specifications."

Third. Rule 5 reads: "Bids shall be opened and read in public."

We recommend that Rule 5 be amended by inserting the words, "at the time specified for receiving bids," and Rule 5 will then read: "Bids shall be opened and read in public at the time specified for receiving bids."

Fourth. Rule 6 reads: "No bids shall be submitted after time named in advertisement."

We recommend that Rule 6 be changed so as to read as follows: "No bids shall be received after time specified."

Fifth. Rule 11 reads: "When all bids are rejected, new bids shall not be made on the same specifications without readvertising."

We recommend that the word "made" be struck out and the word "received" be inserted in its place.

Sixth. Rule 14 reads: "Checks or bid bonds shall be returned to all but successful bidder as soon as award of contract is made."

We recommend that Rule 14 be amended by inserting the words, "and to successful bidders as soon as contract is signed, accepted and bond filed, if required;" so that Rule 14 shall read: "Checks or bid bonds shall be returned to all but the successful bidder as soon as the award of contract is made, and to successful bidders as soon as contract is signed, accepted and bond filed, if required."

Seventh. Rule 20 reads: "Extra work shall only be done on written order of engineer, when authorized by contractee, at a price to be agreed upon."

We recommend that all words in Rule 20, after the word "engineer," be struck out.

Eighth. Rule 21 reads: "In deducting material not required, only the value of same shall be deducted."

We recommend that Rule 21 be amended and changed to read: "In deducting material or work not required,

only the cost to the contractor shall be deducted. This applies to lump sum contracts only."

Ninth. Rule 29 reads: "Monthly estimate shall be made on or before the fifth day of each month."

We recommend that Rule 29 be amended by inserting the words, "unless otherwise agreed," so that Rule 29 shall read: "Monthly estimates shall be made on or before the fifth day of each month, unless otherwise agreed."

Tenth. Rule 30 reads: "Ten per cent. of monthly estimate shall be retained by contractee until work is completed."

We recommend that Rule 30 be changed and amended to read: "Not more than fifteen per cent. (15 per cent.) of monthly estimates shall be retained by the contractee until work is completed."

Eleventh. Rule 32 reads: "When work is completed, engineer shall accept or reject same within a reasonable time."

We recommend to strike out the words "within a reasonable time" and insert the words, "in writing," so that Rule 32 shall read: "When the work is completed, engineer shall accept or reject same in writing."

Twelfth. Rule 34 reads: "When work is accepted, ten per cent. retained shall be paid in final settlement, and bond shall be released and returned, except where a time guarantee has been agreed upon."

Rule 34 contains several clauses and is capable of misconstruction, particularly in a case where engineer's specifications specify a time guarantee, and bidder bidding under the rules, with a copy of the Association rules attached to his bid, did not suppose he was giving a time guarantee, the question arose as to whether the bid in question under Rule 34 did not include a time guarantee.

We, therefore, recommend that two rules be made of Rule 34. and that they be numbered Rules 34 and 35 and read as follows:

Rule 34. "When a time guarantee has been agreed upon, a separate security shall be furnished."

Rule 35. "When work is accepted, percentage retained shall be paid in final settlement, and bond shall be released and returned."

We further recommend that the following footnote be printed with the rules.

NOTE.—In drawing up specifications, if engineers will insert, "All work done under the rules of the American Public Works Association," it will not be necessary to print rules in full in specifications.

Respectfully Submitted,

George O. Tenney,

Charles C. Wilson,

N. Wilson Davis,

J. E. Brady,

Maurice W. Thomas,

Adam Jones,

Charles F. McKenzie.

Committee on Rules.

The Chairman.—Gentlemen, you have heard the report of the Committee on Rules, it is an excellent report, and as the subject matter is important, I believe the recommendation of the Committee on Rules that each rule changed be voted on separately, be carried out, and a motion to that effect is in order.

Mr. Parker.—Mr. Chairman, I move that the report of the Committee on Rules be taken up by sections, and that each section be voted upon separately.

Mr. Crimmins.—I second that motion.

Motion was adopted.

The Chairman.—The Secretary will please read the report of the Committee on Rules by sections.

The Secretary then read the report by sections amid a general discussion, with following result.

Section First.—Adopted.

Section Second.—Adopted.

Section Third.—Adopted.

Section Fourth.—Adopted.

Section Fifth.—Adopted.

Section Sixth.—Adopted.

Section Seventh.—Adopted.

Section Eighth.—Adopted.

Section Ninth.—Adopted.

Section Tenth.—Rejected.

Mr. O'Beirne.—I am somewhat surprised at the vote on Rule 30, particularly as the same recommendation regarding rule 30 was made by the Executive Committee and was also strongly urged by Mr. Dodd in his excellent paper, and while it looks like a hardship to withhold fifteen per cent., I believe it will, in the end, be the best for the contractor; as many contractors gauge the percentage of profit in a bid by the amount held back in the contract, and I believe for that reason, if for no other, the retaining of fifteen per cent. will tend to better prices in general.

Mr. Parker.—Mr. Chairman, I believe that ten per cent. retained with the further security of a surety bond for 25 per cent. of the contract price is ample security for the faithful performance of a contract, and I am in favor of letting Rule 30 stand in its original form.

The Chairman.—I believe ten per cent. is as much as should be held back until final settlement, if the purchaser has the money, there is no reason why the good bond and fifteen per cent. also should be retained.

The Secretary.—The company I represent does a large

business with cities, and it sometimes requires a long period to complete a contract, and as a general business proposition, I regard fifteen per cent. as much more than necessary to be retained on a cast iron pipe contract.

Mr. Bowron.—Mr. Chairman, I am opposed to 15 per cent. being retained on city contracts until final completion, and I voted against the change from ten to fifteen per cent. in the committee room but was outvoted. I believe we have found ten per cent. to work well during the past two years, and think Rule 30 should not be changed.

Mr. Dodd.—I think this convention will err on the side of safety if they adopt the 15 per cent. clause in Rule 30, as recommended by the Committee on Rules and by the Executive Committee. Ten per cent. is entirely too small an amount from the bondsman's standpoint, and I believe this Association should, in matters of doubt, take the safe course. No contractor should bid with a profit of less than ten per cent., and it does not seem to me proper that a contractor should carry out a piece of work and have only his profit invested, while the bond company carries the risk and responsibility. I think the contractor should have some financial interest at stake in addition to his profit.

Mr. King.—I believe that the recommendation of the Committee on Rules is wise and conservative and that it will, if adopted, result in a better class of bidders, as it will require capital to be invested in addition to the monthly pay roll required to carry out a contract. The government, in most contracts, requires that not less than fifteen per cent. be released until completion of contract. There may, however, be cases where fifteen per cent. may be unnecessary, as in the contract sale of manufactured goods. I will thereupon make a motion that Rule 30 be amended so as to read: "Not more than 15 per cent. (15%),

nor less than 10 per cent. (10%) of monthly estimates shall be retained by contractee until work is completed."

Motion was seconded by Mr. Thomas and adopted.

Section Eleventh.—Adopted.

Section Twelfth.—Adopted.

Mr. O'Beirne.—Mr. Chairman, I have been requested by a prominent manufacturer to submit a new rule for this Association, and simply for the purpose of bringing it before this convention. I make a motion that a new rule be adopted to be known as Rule 37, same to read as follows: "When material is bought f. o. b. direct from manufacturer by the city, only five per cent. (5 per cent.) shall be retained."

The motion was seconded by Mr. Parker and adopted without discussion.

The Chairman.—The Secretary will now read the Association Rules as changed and amended.

The Secretary then read the rules as follows:

RULES OF THE AMERICAN PUBLIC WORKS ASSOCIATION.

Rule 1. When State or Municipal Statutes conflict with the Association rules, the latter shall be waived.

Rule 2. When work is done on a percentage basis, security should be given to guarantee faithful performance of the work.

Rule 3. Architects and engineers shall not bid on contract for work advertised to be let under their plans and specifications.

Rule 4. No bids shall be asked until money to pay for the work has been provided.

Rule 5. Bids shall be opened and read in public at the time specified for receiving bids.

Rule 6. No bids shall be received after time specified.

Rule 7. No bids shall be withdrawn after time set for opening bids.

Rule 8. Illegibility or ambiguity shall invalidate a bid.

Rule 9. Bidders shall not be permitted to change prices stated in bids.

Rule 10. Bids shall state specifically, make of apparatus or machinery proposed, and same shall be specified in contract.

Rule 11. When all bids are rejected, new bids shall not be received on the same specifications without re-advertising.

Rule 12. The amount of certified check required shall be stated in the advertisement calling for bids.

Rule 13. Bid bonds may be substituted for certified checks.

Rule 14. Checks or bid bonds shall be returned to all but the successful bidder as soon as award of contract is made, and to successful bidders as soon as contract is signed, accepted, and bond filed, if required.

Rule 15. Award of contract shall be made within thirty days (30 days) after bids have been opened, or checks returned to bidders.

Rule 16. Bond shall not exceed twenty-five per cent. (25 per cent.) of contract price, unless otherwise provided by law.

Rule 17. Twenty days shall be allowed contractor in which to furnish a satisfactory bond.

Rule 18. In event of discrepancies between the drawings and specifications, decision of the engineer shall be final.

Rule 19. All instructions regarding work shall be given by the engineer.

Rule 20. Extra work shall only be done on written order of the engineer.

Rule 21. In deducting material or work not required, only the cost to the contractor shall be deducted. This applies to Lump Sum contracts only.

Rule 22. Changes in construction shall not be made to lessen quantities of material in transit, or in progress of manufacture, unless contractor be paid for all actual loss occasioned.

Rule 23. When a specific make of machinery or apparatus is specified in contract, same shall be furnished in accordance with the manufacturers' plans and specifications, submitted with bid.

Rule 24. Engineer or his authorized assistants shall at all times have access to the work and materials, for purpose of inspection, and have notice of concealed work before it is covered.

Rule 25. In event of emergency work, contractor shall notify engineer, and engineer shall furnish inspector.

Rule 26. When work done in regular progress of the contract is ordered torn down for purpose of inspection, if found to be in accordance with the specifications, it shall be at the cost of contractee.

Rule 27. Engineer shall give written notice to the contractor when work or material has been rejected.

Rule 28. Monthly estimate shall be based on the contract price, and shall include all material delivered and accepted, and labor performed during previous months.

Rule 29. Monthly estimates shall be made on or before the fifth day of each month, unless otherwise agreed upon.

Rule 30. Not more than fifteen per cent. (15 per cent.) nor less than ten per cent. (10 per cent.) of monthly estimates shall be retained by contractee until work is completed.

Rule 31. Time shall be allowed contractor for delay caused by strikes, accidents, or other causes beyond his control.

Rule 32. When the work is completed, engineer shall accept or reject same in writing.

Rule 33. Contractor is released from all future responsibility when contractee takes possession of plant, whether settlement has been made or not, unless otherwise agreed.

Rule 34. When time guarantee has been agreed upon, a separate security shall be furnished.

Rule 35. When work is accepted, percentage retained shall be paid in final settlement, and bond shall be released and returned.

Rule 36. Arbitration shall be resorted to in all cases before applying to the courts.

Rule 37. When material is bought f. o. b. direct from manufacturer by the city, only five per cent. (5 per cent.) shall be retained.

NOTE: In drawing up specifications, if engineers will insert, "All work done under rules of the American Public Works Association," it will not be necessary to print rules in full in specifications.

The Chairman.—A motion is now in order to adopt the rules as a whole.

Mr. Butner.—I move the adoption of the rules as read. Motion was seconded by Mr. Jones and adopted.

The Chairman.—We are now ready to receive the report of the Finance Committee.

Mr. Cole.—Mr. Chairman, your Finance Committee begs to report that owing to the absence of our treasurer we have been able to audit the accounts of the Association only as they are shown by the books of the Secretary.

The report follows:

REPORT OF THE FINANCE COMMITTEE:

Collections from 148 members	\$411.00
Dues	1.00

Total collections \$412.00

Which amount has been paid to H. J. Malochee, Treasurer, as follows:

Aug. 26, 1904	\$58.00
Oct. 25, 1904	35.00
Nov. 16, 1904	32.00
Dec. 5, 1905	24.00
March 30, 1905	91.00
Sept. 15, 1906	172.00

Total \$412.00

Bills have been approved by the Executive Committee for payment and forwarded to the Treasurer.

On December 3, 1904	\$ 50.15
On December 29, 1905	51.78

Total \$101.93

Balance in Treasury Sept. 13, 1906 \$310.07

There are many membership fees due from new applicants as well as annual dues due from old members which have not been taken into account, and your Committee urges you to take such action as will facilitate the collection of these dues. We would take this occasion to compliment our Secretary on the very able manner in which the records of his office have been kept.

Respectfully submitted,

M. F. COLE, Chairman.

A. J. BOWRON.

W. F. WILCOX.

Finance Committee.

Sept. 15, 1906.

Upon motion the report was adopted.

Mr. O'Beirne.—I move that the Secretary be instructed to call on the Treasurer for a report in writing.

The motion was seconded and carried.

Mr. Thomas.—I do not know whether I am in order or not, but if I am, I would like to extend a vote of thanks to Secretary Flint for the able manner in which he has performed the duties of his office.

The motion was seconded and was unanimously passed by a rising vote.

Secretary Flint.—I thank you, I thank you, I thank you. (Applause).

Mr. King.—I want to move that the Executive Committee be instructed to incorporate this organization. It seems to me it is hardly proper for the organization to go on as a merely voluntary organization. We are not incurring any large expense, but until we do incorporate, every member is liable for all the debts of the Association as a general rule, and I think it is much more fitting for us to be incorporated. This matter should be referred to the Executive Committee. I, therefore, move that the Executive Committee be instructed to secure the incorporation of this Association under the laws of any state they desire.

The motion was seconded and carried.

The Chairman.—The Secretary will now read the report of the Nominating Committee.

The Secretary:

REPORT OF COMMITTEE ON NOMINATIONS FOR OFFICERS.

President, R. C. Huston, Hattiesburg, Miss.

Vice-President, M. F. Cole, Newnan, Ga.

Vice-President, C. C. Wilson, Columbia, S. C.

Vice-President, Geo. O. Tenney, Spartanburg, S. C.

Secretary, William H. Flint, Chattanooga, Tenn.
Treasurer, Morgan Llewellyn, Chattanooga, Tenn.

Executive Committee:

Edward J. O'Beirne, Atlanta, Ga.
A. J. Bowron, Birmingham, Ala.
Chas. F. McKenzie, Augusta, Ga.
Jno. W. Neil, Cincinnati, Ohio.
Maurice Thomas, Atlanta, Ga.
C. M. Ladd, Chicago, Ill.
A. M. Lockett, New Orleans, La.

Mr. Dodd.—I move the Secretary be instructed to cast the ballot of this Association electing the officers nominated.

Mr. Thomas.—If I may make a suggestion I think we should have a lawyer on that Executive Committee, and I suggest Mr. Slicer.

Mr. O'Beirne.—I think as I have been on the Committee two years I would like to be excused. I would, therefore, like to have Mr. Slicer's name put on instead of mine.

Mr. Dodd.—I move we do not accept Mr. O'Beirne's declination.

Mr. Neil.—I am away up North and do not get down here very often and probably would not have an opportunity of meeting the Executive Committee, and I agree with you that the other member should be some local Atlanta man, and I would ask to be excused and have Mr. Slicer put in my place.

The Chairman.—I think the Executive Committee has charge of that. Are the members of that Committee here?

Mr. King.—I should like very much to see such a gentleman as Mr. Slicer on the Executive Committee, but if Mr. Slicer is put on it seems to me some one who has been recommended by the Nominating Committee would be displaced. Two gentlemen have suggested that they be

displaced and Mr. Slicer take the other place. It seems to me that the reasons given by each of these gentlemen as reasons for going off the committee are, in my opinion, reasons which commend themselves to the members of the Association for their staying on. We are still growing. We are proud of our progress, but we hope to get a lot bigger, and it seems to me that the wise counsel that Mr. O'Beirne has given us in the last two years eminently fits him to represent the Association not only for another year, but until it is stronger on its feet. Therefore I regret to see him leave the Committee. On the other hand, Mr. Neil says he comes from the North and is far away, and for that reason should be left off. We all hope that the American Public Works Association shall extend in the North, and really become in name as well as in purpose a national association. It seems to me northern members ought to be recognized, and the very fact that Mr. Neil does come from Cincinnati is the very strongest possible reason why he should, as the representative of the Cincinnati Engineers, Manufacturers and Contractors, be on the Committee. I, therefore, hope the motion made by Mr. Dodd will receive four-fifths of the votes of the members present, and that the Secretary shall be instructed to cast the ballot for the officers as named by the Nominating Committee.

Mr. O'Beirne.—I move that the by-laws be amended to add two more names to the Executive Committee, and that you add Mr. King and Mr. Slicer.

Motion was seconded.

Mr. King.—I must say that fellow has the most unexpected way of speaking that I ever heard of.

The motion was then put and carried.

Mr. Dodd.—I move that the Secretary be instructed to cast the ballot of this Association for the nominations

made with the understanding that Mr. King and Mr Slicer are added to the Executive Committee.

The motion was seconded and carried.

The Secretary.—As instructed, I cast the vote of this Association for the officers nominated by this Committee of your Association, adding the names of William B King and J. S. Slicer to the Executive Committee.

The President.—We will now have the report of the Committee on Uniform Contracts.

Mr. Tenney.—As Chairman of that Committee, I would like to ask that our report be made at the next annual meeting. It will be impossible for us to make any report at this time. I would state that we have had a conference and we have got to get a good many different contract forms for the use of the Committee, and from different places, and try to formulate some contract that we think will be acceptable to the members of the Association, and it seems to me it is very important we should not leave out anything. We therefore ask for more time.

Mr. Crimmins.—I move that the Committee be granted until the next annual meeting in which to make report.

Mr. O'Beirne.—I move that the recommendations in Mr. Humes paper of Standardization of Hydrant Nozzles be adopted by the Association. We are making no blunder; we are simply following the path blazed out by a dozen different associations, and I think it is a very important matter to add our little iota to it, and push along the day when we will have standard hydrants all over the United States. I think it would be wise.

Mr. Crimmins' motion being first in order, was seconded and carried.

The motion of Mr. O'Beirne was then seconded and carried.

Mr. O'Beirne.—I move that the Executive Committee be authorized to publish our proceedings, including the

papers that have been read before this meeting, and that they also be authorized to solicit ads which could be put in the rear pages of the book and help defray the expense of publishing it.

The motion was seconded.

The Chairman.—I am a member of the Western Society of Engineers and I was requested by the secretary to send him a copy of these proceedings, and I think it would be a pretty good idea to have a copy sent to all of the Engineering Societies.

Mr. O'Beirne.—We have been receiving requests from other public bodies all over the country to send them our literature, and we have had none to send. Not only our proceedings at this meeting, but the proceedings of the Gulfport meeting should be also included in the book. We can publish them, and in that way preserve the records from year to year.

A member.—I move we comply with the suggestion that we have ads.

Mr. O'Beirne.—I would like to say in support of that suggestion that it is customary for a great many bodies to do that. The cost of publication will be about five hundred dollars. I had the pleasure of publishing the National Electric Light proceedings for some years. We received \$25 a page. It will furnish us money to get out a book with the proper finish. I do not mean to put ads in the body, but in the rear of the book. I do not believe that would be objectionable, if it is restricted.

The Chairman: You do not make that as an amendment to that motion.

Mr. O'Beirne: No; I do not.

Mr. Neil: It is not the intention to publish all of these discussions, is it?

Mr. O'Beirne: Yes; but they will all be carefully edited. We have an official reporter and he is getting it out

and will turn over to us everything that has passed in these proceedings since the meeting was opened.

The motion of Mr. O'Beirne was carried.

The President: I would say in regard to discussions that I think it a wise thing to publish them, as it will awaken interest, particularly with our members who are absent. I do not know anything that will awaken more interest than the discussions. We do not discuss enough. Some thoughtful papers have been discussed. In publishing the proceedings in detail, it will awaken interest and tend to bring discussions more permanently forward. I think great good results from it.

Mr. King: I want to suggest to Mr. O'Beirne that he see to the editing and publishing.

Mr. O'Beirne: I accept that amendment.

The motion was seconded and carried.

Mr. O'Beirne: I move we adjourn sine die, subject to the call of the Executive Committee.

The motion was seconded.

Mr. Slicer: Before we put that motion, I would like to say it seems to me that a vote of thanks should be extended to the Entertainment Committee for looking after the visitors very carefully, and I understand they have arranged a delightful smoker for us to-night, and I am sure each member of the Association feels the same way I do about it. I move we extend to that Committee a rising vote of thanks, as well as to the Atlanta Waterworks office.

The motion was seconded and carried.

Mr. O'Beirne: I also move we extend a vote of thanks to our retiring officers.

The motion was seconded and carried, and the motion to adjourn was put and carried.

The President then announced the Atlanta meeting adjourned.



NEW TERMINAL STATION

REPORT OF

H. J. Malochee, Ex-Treasurer, American Public Works
Association.

1904.

Aug. 27th. Collections at Gulfport	\$ 58.00	
Sept. 1st. Paid E. J. O'Beirne, organiza-		
tion expense		30.00
Oct. 31st. From Secretary Flint	35.00	
Oct. 31st. Exchange on above		.10
Nov. 18th. From Secretary Flint	32.00	
Nov. 18th. Exchange on above		.10
Nov. 18th. Approved bills, paid E. J.		
O'Beirne		50.15
Dec. 14th. From Secretary Flint	24.00	

1905.

Apr. 1st. From Secretary Flint	91.00	
Apr. 1st. Exchange an above		.20

1906.

Jan. 23rd. Approved bills, paid E. J.		
O'Beirne		51.78
Sept. 21st. From Secretary Flint	172.00	
Sept. 21st. Exchange on above		.26

\$412.00	132.69
132.69	

Balance due by Treasurer \$279.31

NOTE.—The above report was not received until after the convention adjourned sine die, but is printed by order of the Executive Committee.

THIS PAGE IS SET APART

BY THE

AMERICAN PUBLIC WORKS ASSOCIATION

To Indicate Its Respect For The Memory

OF

Van Dusen White-Smith

Born near Louisville, Ky., on August 4,
1874. Died at Knoxville, Tenn.,
on August 27, 1906.

An engineer and contractor of Knoxville,
Tenn., whose early death cut short a brilliant
career.

THIS PAGE IS SET APART

BY THE

AMERICAN PUBLIC WORKS ASSOCIATION

To Indicate Its Respect For The Memory

OF

James F. Casey

Born in Yellow Spring, Green County, Ohio, on February 4, 1855. Died at his summer home, Walden's Ridge, near Chattanooga, Tenn., on August 15, 1904.

Was Vice-President and General Manager of the Casey & Hedges Manufacturing Co., of Chattanooga, Tenn. A man of strong character and great talents. To know him was to admire him.

THIS PAGE IS SET APART
BY THE
AMERICAN PUBLIC WORKS ASSOCIATION

To Indicate Its Respect For The Memory
OF
William Reynolds Fleming

Born in Harrisburg, Pa., on May 9, 1862.
Died at Washington, D. C.,
on June 6, 1906.

Was president of the Harrisburg Foundry and Machine Works, of Harrisburg, Pa. A man whose success was only equalled by the friends he made.

THIS PAGE IS SET APART
BY THE
AMERICAN PUBLIC WORKS ASSOCIATION

To Indicate Its Respect For The Memory

OF

W. O. Glass

Born in Hickory, Penn., on December 8,
1865. Died at Vicksburg, Miss.,
on October 8, 1905.

Was a contractor at Yazoo City, Miss., for many years and well and favorably known to the trade. In his home town few men ranked as high.

THIS PAGE IS SET APART

BY THE

AMERICAN PUBLIC WORKS ASSOCIATION

To Indicate Its Respect For The Memory

OF

John M. Healy

Born in Wellington, Ill., on August 7,
1858. Died at Chicago,
July 16, 1906.

Was in the contracting business for thirty
years at Chicago, Ill., and no man's word was
better than that of Honest John Healy.

ORGANIZATION MEETING OF THE AMERICAN PUBLIC WORKS ASSOCIATION.

In response to a notice sent to manufacturers, engineers, contractors and material men, asking them to meet together and provide suitable regulations, in connection with the execution of public works, a number met in parlor "D" of the Great Southern Hotel, at Gulfport, Miss., on Friday, August 26th, 1904.

Edward J. O'Beirne, called the meeting to order at 10 A. M., and nominated Mr. M. F. Cole, for Temporary Chairman, who was unanimously elected. Mr. Cole, in a few words, expressed his pleasure in being able to serve the convention. Mr. H. J. Malochee was placed in nomination for Temporary Secretary, and elected unanimously.

Chairman Cole, said he would like to have some further information as to the object and purpose of the meeting, and called upon Mr. O'Beirne to state what it was.

Mr. O'Beirne said, that several years ago the necessity for uniformity of specifications was apparent to him, and to other contractors and material men, owing to the wide difference of opinion among engineers, each framing his specifications to suit himself. The idea of a meeting of those interested, he said, was first suggested by the late Mr. Patrick Walsh, of Chattanooga, in 1900. That the object of the meeting was to organize a permanent association, and formulate a code of uniform rules, to be incorporated in all general specifications, pertaining to public work, which should be observed by the members of the Association as far as possible. That it was the intention that the rules should be fair and just to all concerned, and he believed their adoption by the engineers, contractors, and material men interested in this particular business would result in better methods, lower bids, and safer contracts. That it was the impression of some,

that this meeting was called for the purpose of "holding up" the towns, or against the interest of certain lines, which was a mistaken idea, for no such intention existed, but on the contrary, the organization to be effected, and the rules to be adopted, were intended for the protection of the interests of all concerned, including municipalities in general, and would tend to decrease the cost of public work. He said that a spirit of equity and fairness should prevail on both sides of all questions to be brought before this convention, and in the adoption of any rules, or measures, he asked for a full, free, and careful consideration of the latter, with the privilege of the floor to anyone who desired to present his views.

Mr. Llewellyn, moved that the Chairman appoint the following committees: Committee on Membership, Committee on Rules, Committee on Permanent Organization, Committee on Finance.

Motion was carried, whereupon the Chairman appointed as follows:

Committee on Membership.—R. C. Huston, T. W. Nicoll, M. W. Thomas, J. A. Gaboury, A. J. Bowron.

Committee on Rules.—E. J. O'Beirne, J. A. Omberg, Jr., L. C. Glenny, W. C. Porter, A. M. Lockett.

Committee on Permanent Organization.—Lee D. Lewman, Walter Castanedo, G. W. Watson, C. M. Ladd, Ben. Willard.

Committee on Finance.—W. H. Flint, Daniel Shafer, E. C. Butner, Morgan Llewellyn, L. S. Russell.

Motion was made and carried, to adjourn and meet at Club House, on end of Pier, at 2 P. M.

Mr. M. F. Cole, Chairman, called meeting to order at 2:30 P. M. H. J. Malochee, Secretary.

On call for committee reports, Mr. R. C. Huston read the following report, from Committee on membership:

We, the Committee on Membership, recommend the

following persons, who are present, to be qualified for membership in this Association:

H. C. Baker, Crocker-Wheeler Co., Atlanta, Ga.

John H. Barnett, Secretary, State Builders Exchange, Jackson, Miss.

Wm. C. Booth, Electric Appliance Co., Memphis, Tenn.

A. J. Bowron, Treasurer, Dimmick Pipe Co., Birmingham, Ala.

E. C. Butner, Stilwell-Bierce & Smith-Vaile Co., New Orleans, La.

M. F. Cole, R. D. Cole Manufacturing Co., Newnan, Ga.

Walter Castanedo, Glenny & Castanedo, Atlanta, Ga.

S. H. Daniels, The Walsh & Weidner Boiler Co., Chattanooga, Tenn.

William Deming, Electric Supply Co., Memphis, Tenn.

Roydon Douglass, Interstate Electric Co., New Orleans, Louisiana.

W. P. Field, Crocker-Wheeler Co., New Orleans, La.

W. H. Flint, U. S. Cast Iron Pipe & Foundry Co., Chattanooga, Tenn.

J. A. Gaboury, contractor, Jacksonville, Ala.

L. C. Glenny, Glenny & Castanedo, New Orleans, La.

J. P. Greenwood, M. E., New Orleans, La.

W. H. Hume, Herron Pump & Foundry Co., Chattanooga, Tenn.

R. C. Huston, Consulting Engineer, Laurel, Miss.

P. A. Ivy, Dimmick Pipe Co., Birmingham, Ala.

J. C. Kennedy, Consulting Engineer, Gulfport, Miss.

C. M. Ladd, Chicago Bridge & Iron Works, Chicago, Ill.

L. D. Lewman, M. T. Lewman & Co., Louisville, Ky.

Morgan Llewellyn, The Walsh & Weidner Boiler Co., Chattanooga, Tenn.

A. M. Lockett, A. M. Lockett & Co., New Orleans, La.

L. W. McDaniel, Contractor, McComb City, Miss.

H. J. Malochee, Glenny & Castanedo, New Orleans, La.

G. R. Newcomer, Columbia Lamp Co., Memphis, Tenn.

Richard C. Huston, Vice-President; W. H. Flint, Secretary; H. J. Malochee, Treasurer.

4th. That there be an Executive Committee elected for the transaction of the business of this Association.

5th. That the Executive Committee consist of five members, and that they shall hold office for one year, or until their successors are installed.

6th. That the Executive Committee shall draft suitable by-laws, rules and regulations, to govern and transact the business of the Association.

7th. That the Executive Committee shall have the power to appoint such committees as may be necessary in the conduct of the business of this Association.

8th. That if the report of this Committee be adopted, the officers be immediately installed, and take charge of the business of this Association.

9th. That the temporary Committee on Rules shall act as the Executive Committee of this Association, until such time as the permanent Executive Committee of this Association shall be elected and installed.

(Signed) L. D. LEWMAN, Chairman,
Committee on Permanent Organization.

It was moved and seconded that the report of the Committee on Permanent Organization be acted upon by section, which was carried, with the following result:

Section 1st. Adopted.

Section 2nd. Adopted.

Section 3rd. Adopted, but amended to postpone election of officers until following day.

Section 4th. Adopted.

Section 5th. Adopted.

Section 6th. Adopted.

Section 7th. Adopted.

Section 8th. Stricken out entirely.

Section 9th. Adopted.

On motion, duly seconded, the report as amended was adopted.

Report of the Finance Committee was then read by Mr. W. H. Flint, Chairman, as follows:

The Finance Committee begs to report the following disbursement, made for account of this Association:

Printing and Postage \$30.00
and recommend the payment of same out of an assessment of \$2.00 from each firm here represented. Said assessment, it is supposed, will be sufficient to defray the expense of printing such rules as may be adopted. We also recommend that firms not represented here to-day, but who have applied for membership, be also assessed, and the manner of collection of said assessment be provided for by the Association. Vouchers covering the above disbursements are hereto attached.

(Signed)

W. H. FLINT, Chairman,
Finance Committee.

The report of the Finance Committee was adopted.

The report of the Committee on Rules was read by the Secretary, as follows:

Mr. Chairman: Your Committee on Rules submit the following rules for your consideration; said rules, if adopted, to be known as "Association Rules." We suggest that each rule be acted upon separately:

1. Engineers shall publish estimated cost of work, in advertisement.

2. Engineers shall guarantee their estimates of cost of work.

3. No bids shall be asked until money to pay for work has been provided.

4. Work advertised to be let by contract shall not be awarded to the engineer.

5. Bids shall be opened at 12 noon.

6. No bids shall be received after bids are opened.

7. Certified checks shall equal five per cent. of bid.
8. Bid bonds may be substituted for certified checks.
9. Bidders shall not be permitted to change price stated in their bid.
10. When all bids are rejected, new bids shall not be made on same specifications within thirty days.
11. Award of contract shall be made within seventy-two hours after bids have been opened, or checks returned to bidders.
12. Contractor reserves right to assign contract.
13. Checks shall be returned to all but successful bidder as soon as award of contract is made.
14. Bond shall not exceed twenty-five per cent. of contract, unless required by a statute.
15. Twenty days shall be allowed contractor to furnish a satisfactory bond.
16. Extra work shall be paid for at cost plus fifteen per cent.
17. Time shall be allowed contractor for delay caused by strikes, accidents, or other causes beyond his control.
18. Contractor shall not be held liable for errors of the engineer.
19. Penalty or forfeiture clauses shall not be enforced unless contract provides bounty of equal amount for early completion.
20. Contractor shall not guarantee the engineer's plans to work successfully.
21. When a specific make of machinery or apparatus is specified in a contract, same shall be furnished in accordance with the manufacturer's plans and specifications.
22. When deduction is made for apparatus or material not required, only the cost of same shall be deducted.
23. Quantity of work shall not be decreased after material has been ordered or shipped.
24. Engineer shall not furnish additional plans or spec-

ifications after contract has been executed, except with contractor's consent.

25. Any permanent detail of construction that is essential to make work substantial and suitable, but which has been omitted by error from the specifications and drawings shall be furnished by the contractor, without additional charge.

26. In the event of discrepancies between the drawings and the specifications, the decision of engineer shall be final.

27. Engineer, or his agent, shall at all times have access to the work and materials for purposes of inspection and supervision.

28. Engineer shall give written notice to contractor when work or material has been rejected.

29. Engineer's estimate shall be based on contract price.

30. Engineer's estimate shall be made on the last day of each month.

31. Engineer's estimate shall include all material delivered, and labor performed.

32. Fifteen per cent. of engineer's estimate shall be retained by contractee, until work is completed.

33. Eighty-five per cent. of engineer's estimate shall be paid contractor on the first day of each month.

34. All work done and material furnished shall become property of contractee, on payment of eighty-five per cent. of engineer's estimate.

35. All differences between engineer and contractor are to be settled by arbitration.

36. Contractor shall not be held liable for damage by the elements, to work or material that is property of contractee.

37. All instruction regarding work shall be given by engineer or his representatives.

38. Engineer shall not permit work to be done that is not in accordance with the contract.

39. Unless otherwise specified, local brick shall be used.

40. In cases of emergency work, contractor shall notify engineer, and he shall furnish inspection.

41. Work torn down, or taken up, for purpose of inspection, if found in accordance with specifications, shall be at cost of contractee, otherwise, contractor.

42. Hydrostatic and hammer tests on cast iron pipe, at pressure in excess of manufacturer's standard specifications, shall be made at foundry.

43. Test pressure on cast iron water mains shall not exceed manufacturer's standard specifications.

44. Insulation tests on electrical apparatus shall be conducted at the factory.

45. Shop test only is to be required on all machinery and apparatus for friction and efficiency.

46. Boilers are to be tested and inspected at factory by a steam boiler inspection company, and certificate rendered.

47. Manufacturers shall guarantee the successful operation of their apparatus, when erected in conformity with their plans.

48. Manufacturers shall guarantee to replace, free of charge, defective material or workmanship, for a period of one year from date of shipment.

49. The measure of claim on manufacturer shall be limited to the price of defective part, which shall be returned to manufacturer before claim is allowed.

50. All bids must state specifically what make of machinery and apparatus it is proposed to furnish, and the bid accepted, including the name of such apparatus and machinery, must be made a part of the contract.

51. No bids shall be withdrawn after time set for opening bids.

52. Illegibility or ambiguity shall invalidate a bid.

53. When work is completed, engineer shall accept or reject within twenty-four hours.

54. Contractor is released from all responsibility when contractee takes possession, whether settlement is made, or not.

55. When work is accepted, fifteen per cent. retained shall be paid in final settlement.

56. When work is accepted by engineer or contractee, bond is to be released.

57. When State or municipal statutes conflict with above rules, the latter shall be waived.

(Signed) EDWARD J. O'BEIRNE, Chairman,
Committee on Rules.

Mr. Llewellyn, moved to lay the rules on the table and refer them to a committee composed of two engineers, two material men and two general contractors.

Motion was lost after much discussion.

Mr. Glenny, moved to reconsider vote taken on deferring election of officers.

Motion was carried.

Mr. O'Beirne, moved that section three of the report of the Committee on Permanent Organization, especially that part referring to permanent officers, be taken up.

Motion was carried.

Then followed the election of permanent officers by acclamation, as follows: J. A. Omberg, Jr., President; R. C. Huston, Vice-President; W. H. Flint, Secretary; H. J. Malochee, Treasurer.

The Chairman appointed Messrs. Castanedo and O'Beirne, to escort Mr. Omberg to the chair. Mr. Omberg pleasantly thanked the Association for the compliment it had paid him, and promised to rule on all questions as fairly and impartially as possible.

Mr. Flint, relieved Mr. Malochee as Secretary, and the meeting continued under permanent organization.

Motion made by Mr. O'Beirne, that the report of the

Committee on Rules be adopted, with the understanding that the Committee submitted the rules as suggestions and not as recommendations.

Mr. Cole, warned the Convention of the danger of going ahead too fast, and suggested as a conservative course that the Convention meet again at a later period to pass on the proposed rules, as he believed they would then be in a position to act more intelligently.

Mr. Lewman, counseled that the Convention make haste slowly, that he believed if nothing more were done, a great advance had been made in the right direction, in getting together and discussing with the engineers present the various questions that had been brought up. He was heartily in favor of uniform specifications, but there were many suggestions in the report of the Committee on Rules, that required careful consideration, and that he was opposed to any radical action that might possibly result in defeating the purpose of this Association.

Mr. Wilcox, said there were some rules he would not agree to observe; there were others which might result in good; and that he believed with Mr. Lewman, if nothing was done, a great deal had been accomplished. That he listened to the various suggestions that had been made, both with pleasure and instruction. He believed a wise and conservative course should be adopted, and that it would be useless to adopt any rules that would not meet with the approval of consulting engineers.

Mr. Glenny, seconded the motion to adopt report of Committee on Rules, and expressed himself as favoring a careful discussion and consideration of each rule. He believed the Convention could pass on the rules just as well at this time as at some future period.

Mr. Lockett, said he understood the particular object of this Association was to adopt a code of rules, and he thought the present time most opportune for that purpose. He believed that if the Convention adjourned

without taking definite action one way or the other, that it would be difficult to get the members present together again. He favored immediate action.

Mr. Malochee, stated that while he recognized the wisdom of the course proposed by some members to defer action on the adoption of the rules presented, he feared, in the event no action should be taken at this meeting, that there would not be as large an attendance at any future meeting as was now present. For that reason, he favored action on the rules by the members now present.

On the call of "Question," the President asked for a rising vote, and the motion to adopt the report of the Committee on Rules was carried.

Motion was made by Mr. Lewman, that rules be voted upon separately. Amended by Mr. Huston, that a two-third vote be necessary for the adoption of a rule. Amendment was accepted, duly seconded and carried, with the following result:

Rule 1. Lost.

Rule 2. Lost.

Rule 3. Adopted.

Rule 4. Adopted.

Rule 5. Amended to read, "Bids shall be opened and read in public.

Rule 6. Adopted.

Rule 7. Amended to read, "The amount of certified checks required shall be stated in advertisement calling for bids."

On motion, the Convention adjourned at 6:30 P. M., to meet same evening at Great Southern Hotel, 8:30 P. M.

Convention was called to order at 8:30 P. M., by President Omberg, Secretary Flint at the desk.

Telegrams expressing solicitation for the welfare of the Association were read by the Secretary from the following:

E. D. Ivy, Salisbury, N. C.

N. S. Sherman Machinery Co., Oklahoma City, Okla.

Black & Laird, Birmingham, Ala.

Capt. T. W. Nicoll, formerly city engineer of Mobile, Ala., made a short address to the Convention, which aroused considerable enthusiasm. He stated that the proceedings of the Convention were a revelation to him. He had in the course of a busy life attended many conventions, for many purposes, but never had he attended a convention where so many conflicting interests were present, and where such perfect harmony and good order prevailed. He said that the future of an association, organized on the lines laid down by the American Public Works Association, was a bright and useful one. That he commended the purposes and objects of the Association as most worthy, and from the standpoint of an engineer in every way desirable. That he saw no reason why the Association should not grow to be one of the largest and most prosperous in the country. Its field was so unlimited, its objects so equitable, its success so desirable, that he believed the Association, and the rulings made by it, would meet with the approval of engineers in general. Speaking for himself, he said, he would adopt the rules endorsed by the Association.

A hearty round of applause was given Capt. Nicoll as he closed his remarks.

The Convention then proceeded with the consideration of the report of the Committee on Rules. The discussion became general, with results as follows:

Rule 8. Adopted.

Rule 9. Adopted.

Rule 10. Amended, to strike out "within thirty days" and insert "without re-advertising." Adopted.

Rule 11. Amended, to strike out "72 hours," and insert "thirty days." Adopted.

Rule 12. Lost.

Rule 13. Adopted.

Rule 14. Adopted.

Rule 15. Adopted.

Rule 16. Adopted.

Rule 17. Adopted.

Rule 18. Lost.

Rule 19. Adopted.

Rule 20. Lost.

Rule 21. Adopted.

Rule 22. Adopted.

Rule 23. Adopted.

Rule 24. Lost.

Rule 25. Lost.

Rule 26. Adopted.

Rule 27. Adopted.

Rule 28. Adopted.

Rule. 29. Adopted.

Rule 30. Amended to read "on or before the fifth day of each month." Adopted.

Rule 31. Adopted.

Rule 32. Adopted.

Rule 33. Lost.

Rule 34. Lost.

Rule 35. Amended, and adopted.

Rule 36. Lost.

Rule 37. Adopted.

Rule 38. Lost.

Rule 39. Lost.

Rule 40. Adopted.

Rule 41. Adopted.

It was moved by Mr. Lockett, and duly seconded, that the President appoint a committee of five members to choose an Executive Committee.

Motion was carried.

President Omberg appointed as a Nominating Committee: A. M. Lockett, E. J. O'Beirne, R. C. Huston, Morgan Llewellyn, and Ben Willard.

On motion the Convention adjourned at 12:15 P. M., to meet next day at Great Southern Hotel, 10 A. M.

President Omberg called the Convention to order at 10 A. M., Saturday, August 27th, 1904, Secretary Flint at the desk.

Mr. Lockett, Chairman of the Committee on Nomination for members of the Executive Committee, read the following report:

Mr. President: Your Committee on Nomination recommend as members of the Executive Committee: L. D. Lewman, W. F. Wilcox, T. W. Nicoll, M. F. Cole, A. J. Bowron, and we further recommend that the number of members of the Executive Committee be increased from five to seven, and that the President be authorized to appoint two additional members.

Report of Committee on Nomination was adopted, and the President appointed as members of the Executive Committee, Messrs. O'Beirne and Willard.

The Convention then proceeded with the consideration of the report of Committee on Rules, with the following results:

- Rule 42. Lost.
- Rule 43. Lost.
- Rule 44. Lost.
- Rule 45. Lost.
- Rule 46. Lost.
- Rule 47. Lost.
- Rule 48. Lost.
- Rule 49. Lost.
- Rule 50. Adopted.
- Rule 51. Adopted.
- Rule 52. Adopted.
- Rule 53. Amended, and adopted.
- Rule 54. Adopted.
- Rule 55. Adopted.
- Rule 56. Adopted.
- Rule 57. Adopted.

Motion by Mr. Malochee, seconded by Mr. Lewman:

First, That the rules adopted be referred to the Executive Committee for publication and editing, it being understood that in editing, the sequence and verbiage may be changed without, however, making any change in the expressed wish of the Association.

Second, That Rules Numbers 2, 4, 9, 13, 14, 16, 23, 24, 31, 32 and 33 are specially referred to the Executive Committee for revision or elimination.

Motion was carried.

Mr. Lewman said he would like to hear from some of the engineers present and called on Mr. Wilcox.

Mr. Wilcox made a most interesting talk. He said he believed the rules adopted were all right, that they were for the most part in accordance with his general specifications, and he believed would meet with the approval of engineers generally.

He commended the members of the Association for the very creditable manner in which the deliberations of the Convention had been conducted. It was, in his opinion, one of the most satisfactory and harmonious gatherings he had ever attended. He regretted that the attendance of engineers was so small, but believed the next annual meeting of the Association would find the profession well represented. He believed that uniform specifications were as desirable to the engineer as to the contractor, and that the efforts of the Association would ultimately be successful.

Motion made, seconded, and carried, instructing the Secretary to place on the roll of members the names of persons, firms or corporations who had applied for membership, but were not represented at this Convention.

It was moved and seconded, that when this Convention adjourn, it will do so subject to the call of the Executive Committee.

Motion was carried.

Mr. Bowron called the attention of the Convention to the fact that its labors were at an end; that he believed the American Public Works Association at this, its first Convention, had accomplished more than any member had supposed could be done, and that the conservatism, and consideration, which had been shown on all questions that had come before the Convention had been a pleasant surprise to him; that they would leave for their homes with a feeling of satisfaction at having been present. And, as all was owing to the work of one man, he would offer a resolution which he believed expressed the sentiment of all:

Resolved, That the thanks of this Convention are herewith tendered Mr. Edward J. O'Beirne, for his untiring efforts, which have resulted in the organization of the American Public Works Association.

Resolution was adopted unanimously.

On motion the Convention adjourned sine die at 1. P. M.

A large, two-masted schooner was engaged during the afternoon, and the members enjoyed a delightful sail over the blue waters of the Gulf of Mexico.

RULES OF THE AMERICAN PUBLIC WORKS ASSOCIATION; AS FINALLY APPROVED BY THE GULFPORT CONVENTION.

1. When State or municipal statutes conflict with Association rules, the latter shall be waived.

2. When work is done on a percentage basis, security should be given to guarantee estimate and faithful performance of the work.

3. Designing engineer shall not compete for work advertised to be let under his plans and specifications.

4. No bids shall be asked until money to pay for the work has been provided.

5. Bids shall be opened and read in public.
6. No bids shall be submitted after time named in advertisement.
7. No bids shall be withdrawn after time set for opening of bids.
8. Illegibility or ambiguity shall invalidate a bid.
9. Bidders shall not be permitted to change prices stated in bid.
10. Bids shall state specifically make of apparatus or machinery proposed, and same shall be specified in contract.
11. When all bids are rejected, new bids shall not be made on the same specifications without re-advertising.
12. The amount of certified check required shall be stated in advertisement calling for bids.
13. Bid bonds may be substituted for certified checks.
14. Checks or bid bonds shall be returned to all but successful bidder as soon as award of contract is made.
15. Award of contract shall be made within thirty days after bids have been opened, or checks returned to bidders.
16. Bond shall not exceed twenty-five per cent. of contract price.
17. Twenty days shall be allowed contractor in which to furnish a satisfactory bond.
18. In the event of discrepancies between the drawings and specifications, decision of the engineer shall be final.
19. All instructions regarding work shall be given by the engineer or his assistants.
20. Extra work shall only be done on written order of engineer, when authorized by contractee, at a price to be agreed upon.
21. In deducting material not required, only the value of same shall be deducted.
22. Changes in construction shall not be made to lessen quantities of material in transit or in progress of manu-

facture, unless contractor be paid for all actual loss occasioned.

23. When a specific make of machinery or apparatus is specified in contract, same shall be furnished in accordance with manufacturers' plans and specifications, submitted with bid.

24. Engineer or his authorized assistants shall at all times have access to the work and materials, for purpose of inspection, and have notice of concealed work before it is covered.

25. In event of emergency work, contractor shall notify engineer, and engineer shall furnish inspector.

26. When work done in regular progress of the contract, and ordered torn down for purpose of inspection, if found to be in accordance with the specifications, shall be at cost of contractee.

27. Engineer shall give written notice to contractor when work or material has been rejected.

28. Monthly estimate shall be based on the contract price, and shall include all material delivered and labor performed during previous month.

29. Monthly estimate shall be made on or before the fifth day of each month.

30. Ten per cent. of monthly estimate shall be retained by contractee until work is completed.

31. Time shall be allowed contractor for delay caused by strikes, accidents, or other causes beyond his control.

32. When work is completed, engineer shall accept or reject same within a reasonable time.

33. Contractor is released from all future responsibility when contractee takes possession of plant, whether settlement has been made or not, unless otherwise agreed.

34. When work is accepted, ten per cent. retained shall be paid in final settlement, and bond shall be released and returned, except where a time guarantee has been agreed upon.

35. Arbitration shall be resorted to in all cases before applying to the courts.

NOTE.—In drawing specifications, if engineers will insert “Work to be done under Rules of American Public Work Association,” it will not be necessary to print rules in full in specifications.

BUSINESS—HEART TO HEART TALKS WITH
PHILISTINES BY THE PASTOR
OF HIS FLOCK.

The civilized world is now experiencing a great Mental and Spiritual Awakening.

It is an Awakening similar to that of Greece in the time of Pericles; of Rome in the time of Augustus; of Italy in the time of Michael Angelo—say, in the year 1492, when Columbus set sail and the invention of printing gave learning to the people.

We are living in the greatest time the world has ever seen—a time that will live in history as The Great American Renaissance. Some will call it “The Age of Edison.”

Beginning with a shower of inventions and discoveries, this Awakening has extended to every domain of human thought and endeavor. The vast changes, for example in the matter of Transportation, only symbol the changes that have occurred in our ideals of right and wrong. Within thirty years’ time we have evolved:

A new science of Education.

A new science of Theology.

A new science of Medicine.

A new science of Penology.

A new science of Business.

Emerson defines Commerce as the taking of things from where they are plentiful to where they are needed.

Business is that field of endeavor which undertakes to supply the materials to humanity that life demands.

The clergy are our spiritual advisors, preparing us for a good place in another world. The lawyers advise us on legal themes—showing us how to obey the law, or else evade it, and they protect us from lawyers. The doctors look after us when disease belief attacks our bodies.

And until about the year 1876, we called Theology, Law and Medicine “The Three Learned Professions.” If we use the phrase now, it is only in a Pickwickian sense—for we realize that there are now fifty-seven varieties of learned men.

The greatest and most important of all the professions is that of Commerce or Business. Medicine and Law have their specialties—a dozen each—but Business has ten thousand specialties or divisions.

So important do we now recognize Business, or this ministering to the material wants of humanity that Theology has shifted its ground, and within a few years has declared that to eat rightly, dress rightly and work rightly are the fittest preparation for a life to come.

The best lawyers now are Business Men, and their work is to keep the commercial craft in a safe channel where it will not split on the rocks of litigation nor founder in the shallows of misunderstanding. Every lawyer will tell you this, “To make money you must satisfy your customers.”

The greatest change in business came with the One Price System. This has all been brought about since the Civil War.

The old idea was for the seller to get as much as he possibly could for everything he sold. Short weight, short count and inferiority in quality were considered quite proper and right, and when you bought a dressed turkey from a farmer, if you did not discover the stone inside the turkey when you weighed it and paid for it,

there was no redress. The laugh was on you. And moreover a legal maxim—*caveat emptor*—"let the buyer beware," made cheating legally safe.

Dealers in clothing guaranteed neither fit nor quality, and anything you paid for, once wrapped up and in your hands, was yours beyond recall—"Let the buyer beware!"

A few hundred years ago business was transacted mostly through fairs, ships, and by peddlers. Your merchant of that time was a peripatetic rogue who reduced prevarication to a system.

The booth gradually evolved into a store, with the methods and customs of the irresponsible keeper intact, the men cheated their neighbors and chuckled in glee until their neighbors cheated them, which of course, they did. Then they cursed each other, began again and did it all over. John Quincy Adams tells of a certain deacon who kept a store near Boston, who always added in the year 1775, at top of column, as seventeen dollars and seventy-five cents.

The amount of misery, grief, disappointment, shame, distress, woe, suspicion and hate caused by a system which wrapped up one thing when the buyer expected another, and took advantage of his innocence and ignorance as to quality and value, cannot be computed in figures. Suffice it to say that duplicity in trade has had to go. The self-preservation of the race demanded honesty, square dealing, one-price to all.

The change only came after a struggle, and we are not quite sure of the one-price yet.

But we have gotten thus far, that the man who cheats in trade is tabu. Honesty as a business asset is fully recognized. If you would succeed in business you can't afford to sell a man something he does not want; neither can you afford to disappoint him in quality any more than in count.

Other things being equal, the merchant who has the

most friends, will make the most money. Our enemies will not deal with us.

To make a sale and acquire an enemy is poor policy. To a peddler or a man who ran a booth at a bazaar or fair, it was "get your money now or never." Buyer and seller were at war. One transaction and they never met again. The air was full of hate and suspicion, and the savage propensity of physical destruction was refined to a point where hypocrisy and untruth took the place of violence. The buyer was as bad as the seller—if he could buy below cost he boasted of it. To catch a merchant who had to have money was glorious—we smote him hip and thigh! Later we discovered that being strangers he took us in.

The One Price System has come as a necessity, since it reduces the frictions of life and protects the child or simple person in the selection of things needed, just the same as if the buyer were an expert in values and a person who could strike back if imposed upon. Safety, peace and decency demanded the One Price System. And so we have it—with possibly a discount to the clergy, to school teachers and relatives as close as second cousins. But when we reach the point where we see that all men are brothers, we will have absolute honesty and One Price to all.

And so behold we find the Government making favoritism in trade a crime and enforcing the One Price System by law. And just remember this, law is the crystallization of public opinion and no law not backed up by the will of the people can be enforced. As we grow better we have better laws. In Kansas City last week three men were fined forty thousand dollars each for cutting prices. They were railroad men and railroads have only one thing to sell, and that is transportation. To cut the price on it and sell to some at a less figure than to others,

is now considered not only immoral, but actually criminal. The world moves.

And this change in the methods of Business, and in our mental attitude towards trade have all grown out of dimly-perceived but deeply felt belief in the Brotherhood of Man, of the Solidarity of the Race.

Also in the further belief that life in all of its manifestations is Divine.

Therefore he who ministers to the happiness and well-being of the life of another is a priest and is doing God's work.

Men must eat, they must be clothed, they must be housed.

It is quite as necessary that you should eat good food, as that you should read good books, hear good music, hear good sermons or look upon beautiful pictures.

The necessary is the sacred. There are no menial tasks. "He that is greatest among you shall be your servant." The physical reacts on the spiritual and the spiritual on the physical, and rightly understood, are one and the same thing. We live in a world of spirit and our bodies are the physical manifestation of a spiritual thing, which for lack of a better word we call "God."

We change men by changing their environment. Commerce changes the environment and gives us a better society. To supply good water, better sanitary appliances, better heating apparatus, better food served in a more dainty way—these are all tasks worthy of the highest intelligence and devotion that can be brought to bear upon them, and every Christian preacher in the world to-day so recognizes, believes and preaches.

We have ceased to separate the secular from the sacred. That is sacred which serves.

Once a business man was a person who not only thrived by taking advantage of the necessities of people, but who banked on their ignorance of values. But all wise

men now know that the way to help yourself is to help humanity.

We benefit ourselves only as we benefit others.

And the recognition of these truths is what has to-day placed the Business Man at the head of the learned professions—he ministers to the necessities of humanity.—

Elbert Hubbard, in "The Philistine."

THE ATLANTA SMOKER.

There is a social side to the meetings of the American Public Works Association—a very pleasant feature of its conventions—as was well exemplified at the smoker given by the Convention Committee, to the members of the Association at Hotel Aragon. The Smoker, by the way, was a bright affair, almost as bright as the cigar tips around the festive board, crowded full of sparkling wit, wholesome good cheer, and unstinted measure of the good things of life.

Secretary Flint, the incomparable, was toast master on this occasion, and all who were fortunate enough to be there, will recall with pleasure, the clear tones of the silver voiced W. B. King; the recollections of Jas. E. Brady; the conservatism of P. J. Casey; the ringing words of J. T. Rose; the wisdom of Howard Neely; all of which formed a picture worth hanging on Memory's wall.

The assemblage was a representative one, and all in all a fair reflection of the brains and business of our Association, for all of which thanks are due our Convention Committee.



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¶ The Executive Committee has purchased 200 solid gold emblems to be worn by members of our Association. They are neat and tasteful in design, finished in white enamel center, having Goddess of Justice in gold, royal blue enamel rim, with the words "American Public Works Association" in gold letters. Emblem can be ordered as a hat pin, scarf pin or button at the net price of Two Dollars each. There will be no chance to get these emblems after this lot has been sold except from the Manufacturer who charges five dollars each for same.

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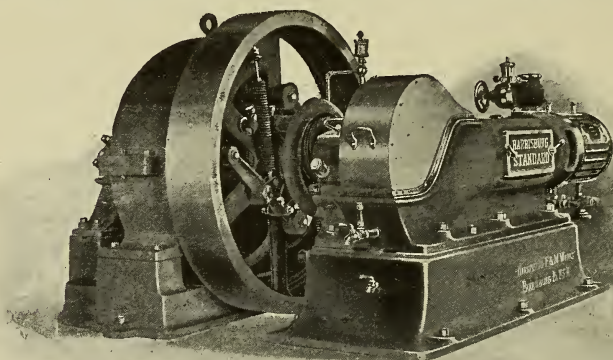
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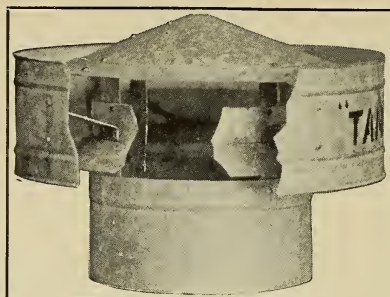
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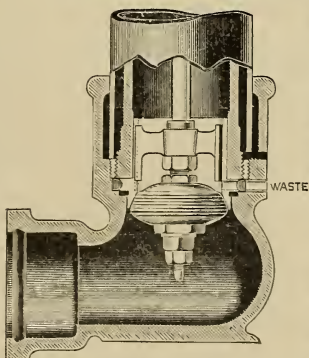
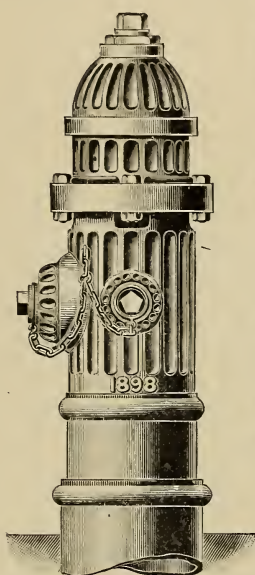
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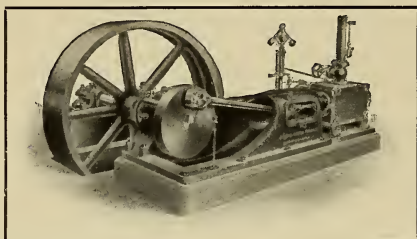
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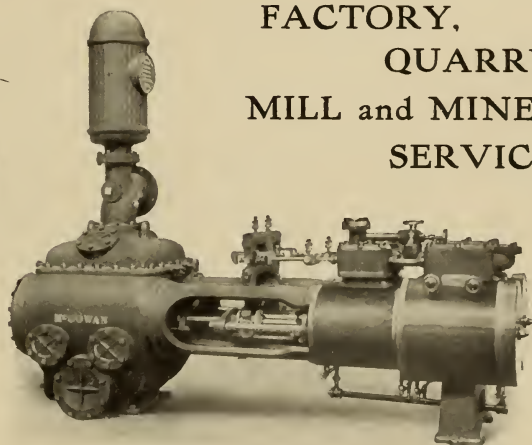
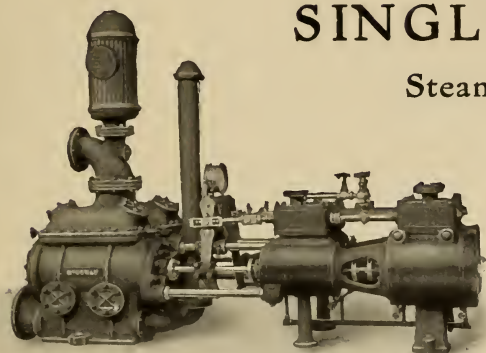
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You will materially assist in this work if you will kindly send the name and address of as many eligible and desirable persons, firms or corporations, as may occur to you, whom you cannot reach personally, to EDWARD J. O'BEIRNE, Chairman Executive Committee, AMERICAN PUBLIC WORKS ASSOCIATION, 821 Empire Building, Atlanta, Georgia, in order that the Executive Committee may call their attention to the work of the Association.

If you do not indicate to the contrary the Executive Committee, will write to each address given, and call attention to the objects of the Association, together with the statement that the name has been suggested by you as that of a desirable member.

If you can, have application card filled out by candidate for membership, and mail same direct to WM. H. FLINT, Secretary, AMERICAN PUBLIC WORKS ASSOCIATION, Chattanooga, Tennessee, and your action will be both appreciated and helpful.

It only requires effort on the part of each individual member to bring our membership to 1,000, which assures the general adoption of the rules of our Association.

Yours very truly,

EDWARD J. O'BEIRNE,

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W49 F

